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WILDLIFE REVIEW

AN ABSTRACTING SERVICE FOR WILDLIFE MANAGEMENT
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Except as indicated, abstracts are by William H. Stickel, editor.

WILDLIFE--BIBLIOGRAPHY, BIOGRAPHY, HISTORY

Anonymous. AVAILABLE PUBLICATIONS OF THE ILLINOIS NATURAL HISTORY SURVEY. Urbana, Illinois. viii + 16 p. March 1952.
Lists both free and priced papers. Indexed.

Graustein, Jeannette E., editor. NUTTALL'S TRAVELS INTO THE OLD NORTHWEST. Chronica Botanica vol. 14, no. 2. Stechert-Hafner, Inc., N. Y. 1952. $3.00. [Copied from Nature Magazine 45(5).]
"This is an unpublished diary of the expedition up the Missouri made in 1810 by Thomas Nuttall, the famous botanist. While his observations center around the flora and fauna, there is much material that gives a vivid picture of the frontier of the time. The editor supplies a brief account of Nuttall's life, and illustrations and data on the former botanic garden at Cambridge, Mass."

Mann, Harrison. THE FIRST HUNDRED YEARS OF CONSERVATION IN "OULD VIRGINIA." Virginia Wildlife 13(4): 10-12, illus. April 1952.
Restrictions on hunting, and the payment of bounties for wolves were begun by the Colony of Virginia as early as 1632. The author gives an interesting review of these and other early regulations, and shows that many of our present problems were foreshadowed in the days of settlement. "Even stream pollution was posing a problem as far back as 1705. A fine of 'ten pounds current money' was levied on any person caught throwing any 'dead negro or other person' into any river or creek."

WILDLIFE--EDUCATION

Carroll, Theron D. THE WILDLIFE CONSERVATION EDUCATION PROGRAM OF THE TEXAS GAME AND FISH COMMISSION, PAST, PRESENT AND FUTURE. Texas Game and Fish 10(2): 4-5, 28-30. Jan. 1952.
The first part of this article is a fairly detailed history of fish and game conservation in Texas. The second part briefly discusses conservation education plans and activities.

Caudle, Fred. RECENT RESEARCH STUDIES ON CONSERVATION TRAINING FOR TEACHERS. Wisconsin Conservation Bulletin 17(4): 25-27. April 1952.
Gives the gist of several studies, and concludes: "These studies tend to show the importance of specific training of teachers if conservation is to be adequately handled in the schools. Special programs, such as summer camps and workshops, have been particularly effective..."

Scott, Walter E., compiler. REPORT TO THE PEOPLE OF WISCONSIN ON PROGRESS IN CONSERVATION EDUCATION. Wisconsin Conservation Bulletin 17(2): 1-66, illus. Feb. 1952.
All persons concerned with conservation education will find this report worthy of much study. Questionnaires on the present status and future needs of conservation education in the state were sent to more than 7000 individuals and groups. About 2800 replies were received. The results are discussed by groups, including "students," "voluntary sportsmen," "conservation organizations," "industry," "press and radio," "agriculture teachers," "libraries," and "science and social science teachers." Many excellent, constructive suggestions appear and it is obvious that interest in conservation is increasing. It is also obvious that much remains to be done and that large elements of the population are uninterested or ill-informed. Few school or city libraries have an adequate nucleus of references on conservation. The need for field work and better teacher training appears again and again in the report.

WILDLIFE--TECHNIQUES

Grizzell, Roy A., Jr. SELECTIVITY OF MIRROR TRAPS. Journal of Wildlife Management 16(1): 114-115. Jan. 1952.
Mirror traps were no more attractive for mammals than other traps, but caught many small birds, chiefly cardinals.

WILDLIFE--TECHNIQUES--Continued

Schultz, Vincent. A SURVEY DESIGN APPLICABLE TO STATE-WIDE WILDLIFE SURVEYS. Report of the Reelfoot Lake Biological Station 16: 60-66, illus. Jan. 1952. [Same as Journal of the Tennessee Academy of Science 27(1): 60-66.]

A portion of a paper presented at the Southeastern Wildlife Conference, Oct. 1950, and at Midwest Wildlife Conference, Dec. 1950. Discusses the value of extensive wildlife surveys and the need for use of statistical methods in planning and analysis. The state is divided into type-of-farming regions, and within each such region a number of small, randomly selected areas are sampled by interviews with farmers and sportsmen. This "area sampling" technique is considered better than other methods previously used in state-wide surveys.

WILDLIFE--ECONOMIC AND OTHER VALUES

Cofer, Henry and Robert Beck. AN EVALUATION OF INCOME AND PRODUCTION FROM AN IMPOUNDED MARSH WITH THAT OF A TIDAL MARSH IN DELAWARE. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-3 p.

As a basis for selling marsh owners on impounded marshes, a tidal marsh was compared to an impounded, fresh water marsh in respect to cash returns. The impounded marsh produced more and larger muskrats. This source of income alone far outstripped total yield of the salt marsh. The fresh marsh also produced more return from fish and turtles, and provided better waterfowl habitat.

Lyons, C. P. RECREATIONAL USE OF FOREST AREAS. Forestry Chronicle 28(1): 50-56. March 1952.

The need for wild areas and recreational areas within timbered tracts is rapidly growing greater, and too few provisions are being made for them. They should be taken into account in management planning, even if this requires revision of previous plans. If this is done, forests can take on increased economic values. Timber harvests need be reduced but little to leave good forest fringes around lakes, roads, and resorts. Representative tracts of virgin vegetation should also be preserved for study and record. So also should outstanding scenic, geological, and historical sites. The tourist trade alone would justify the cost and trouble.

Speck, Frank G., and Ralph W. Dexter. UTILIZATION OF ANIMALS AND PLANTS BY THE MALECITE INDIANS OF NEW BRUNSWICK. Journal of the Washington Academy of Sciences 42(1): 1-7. Jan. 1952.

WILDLIFE--NATURAL AREAS

Buell, Jesse H., Richard E. Griffith, and John F. Shanklin. ARE NATURAL AREAS ESSENTIAL? Journal of Forestry 50(3): 237-239. March 1952.

Report of the Committee on Natural Areas of the Society of American Foresters. The committee is strongly in favor of natural areas, and gives a number of reasons why they are desired by foresters. In brief, they are necessary for certain types of research and are of great value as outdoor museums. In an accompanying progress report (pages 239-240) the committee tells of its activities in determining what types of natural areas are most needed, and of its plans to have new natural areas set up on both federal and non-federal lands.

Hamerstrom, Frederick and Frances. WHAT'S A WILDERNESS FOR? Wisconsin Conservation Bulletin 17(3): 19-20. March 1952.

In addition to their aesthetic values, wilderness tracts are of real practical importance for comparative study. Even down timber should not be removed from them unless necessary for fire protection.

WILDLIFE--NATURAL AREAS--Continued

Harrington, C. L. STATE BOARD FOR THE PRESERVATION OF SCIENTIFIC AREAS. Wisconsin Conservation Bulletin 17(4): 14-15, illus. April 1952.
"A scientific area is a tract of land, of varying acreage, in its natural state set aside and permanently protected or managed for the purpose of preservation of native plant or animal communities or of rare or valuable individual members of such communities." Wisconsin now has 4 such tracts; a scenic gorge of unusual botanical interest; a large swamp and bog; an old forest of hardwoods and hemlock; and a 60-acre section of virgin low prairie. Other tracts will be added, but in general, areas of a given type will not be duplicated. [Wisconsin deserves great credit for this program. Few aspects of conservation are so urgent and so neglected as the preservation of natural areas. Small areas of high scientific value often can be preserved if people in the state are interested. Hundreds of them are destroyed each year because there is little real effort to save them. In many regions one would be hard put to it to find a natural area of any kind.]

Sischo, M. A., Sr. FLAMBEAU HEADACHES. Wisconsin Conservation Bulletin 17(3): 21-24, illus. March 1952.
Without disputing the value of the Flambeau Wilderness area, the author expresses reservations concerning its economic status and its protection from wind, fire, and deer. Down timber makes an especially touchy economic question and complicates fire protection and deer harvesting. The author's main conclusion is that the tract strongly needs a far heavier deer take.

WILDLIFE--BIOTAS, COMMUNITIES, GENERAL ECOLOGY

Goff, Carlos C. FLOOD-PLAIN ANIMAL COMMUNITIES. American Midland Naturalist 47(2): 478-486, illus. March 1952.
A brief, rather general paper that relates animals to the plant communities along the Sangamon River, Piatt County, Illinois. Seven communities are briefly described. Numbers of individuals of various invertebrates are given for each community. Distribution of 10 species of earthworms is correlated with the communities. There are a few general remarks on vertebrates. "There is a uniform progression in species from the lower stages to the highest but there is not a uniform progression in the number of individuals per unit area, though the tendency is for larger numbers in the higher stations, the climax stage having more than any preceding stage."

Muesebeck, C. F. W. and Karl V. Krombein. LIFE ZONE MAP. Systematic Zoology 1(1): 24-25, illus. Spring 1952.
"In many groups of Hymenoptera sufficient data have been analyzed so that the range of many species may be given succinctly by reference to life zones.....The map is an adaptation of the U. S. Biological Survey's Fourth Provisional Zone Map of North America, 1910.....The only changes, other than those occasioned by the use of symbols instead of colors for the various zones, have been the addition of a small area of Tropical Zone at the extreme southern tip of Texas and a rezoning of Alaska on advice received by R. I. Sailer." The map is 7 x 8 inches. [One wonders how many ranges can be expressed properly by simple reference to 1 or more life zones.]

Stephenson, T. A. and Anne. LIFE BETWEEN TIDE-MARKS IN NORTH AMERICA. II. NORTHERN FLORIDA AND THE CAROLINAS. Journal of Ecology 40(1): 1-49, illus. Feb. 1952.
An account of the distribution of algae and animals on rocky substrata between tide-marks at Marineland, Fla., in the vicinity of Charleston, S. C., and in the vicinity of Beaufort, N. C.--Neil Hotchkiss.

WILDLIFE--BIOTAS, COMMUNITIES, GENERAL ECOLOGY--Continued

Swan, Lawrence W. SOME ENVIRONMENTAL CONDITIONS INFLUENCING LIFE AT HIGH ALTITUDES. Ecology 33(1): 109-111, illus. Jan. 1952.

At 13,500 feet on Mt. Orizaba, Mexico, during a single day, some animals live under tropical desert conditions, others under arctic conditions. This is mainly because weather varies widely during the day. A lizard and many insects are active only during the few hours of sunshine. A Microtus is active only during the cold night. High altitude animals are divided into 7 categories according to their temperature preferences.

WILDLIFE--NUMBERS AND NUMBER FLUCTUATIONS

Latham, Roger M. ANIMALS BY THE MILLIONS. Pennsylvania Game News 23(1): 37-42, illus. April 1952.

A series of brief descriptions of the vast populations now or formerly produced by various species. Some of the examples are familiar to most biologists, including the stories of the California mouse plague, the rabbit in Australia, and the passenger pigeon. Others are less familiar: springtails in Switzerland, water fleas in Belgium, water birds along the White Nile, guillemot and penguin colonies, bobwhites in Wisconsin (so common they were used for trap shooting), and the springbuck in Africa. The author points out that the passing of the bison need not be deplored, for the herds had to go to make way for agriculture, and the country still has as many bison as it cares to support.

WILDLIFE--MORTALITY FROM INSECTICIDES, WEATHER, CARS, ETC.

Linduska, Joseph P. DANGER! A NEW "KILLER" STALKS OUR FISH AND GAME. Hunting and Fishing 29(3): 28-30, 80, illus. March 1952.

On modern insecticides, principally DDT. Examples of wildlife fatalities from this source are given, causes of variation in effect are outlined, and safe dosage levels for different environments are mentioned. Carelessness, and doubling the dose just to be on the safe side, have made the worst trouble with LDT. Wildlife effects of the terrifically toxic organic phosphates are still largely unknown.

Shepard, Paul, Jr. OUR HIGHWAYS AND WILDLIFE. Nature Magazine 45(1): 34-37, illus. Jan. 1952.

The author discusses highways as destroyers and producers of game, and gives interesting examples of both types. He feels that with rare exceptions highway mortality is just another cause of death and has little effect on populations, traffic-killed animals being quickly replaced if the population is otherwise healthy. Roadsides provide habitat for many animals, especially in intensively farmed areas. "While we are concerned with the highway toll, other aspects of highway ecology deserve more public attention. The sinister shadow of chemical poisons and flame-throwers for 'control' of vegetation and 'pests' is being cast over the highways of the whole country. Here is the real highway danger. The threat is directed toward essential food and cover. Perhaps our efforts should be directed against the specter of chemical warfare, rather than expended in vain wailing over the unavoidable."

WILDLIFE--MANAGEMENT--GENERAL

Anderson, A. H. PROFITABLE COOPERATIVE WILDLIFE PROGRAM ON MONONGAHELA NATIONAL FOREST - WEST VIRGINIA. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-8 p.

A general review of the cooperative program of the Forest Service and the State Conservation Commission. Plans, accomplishments, and problems are discussed.

WILDLIFE--MANAGEMENT--GENERAL--Continued

Anonymous. GABRIELSON'S REPORT ON N. Y. New York Conservation Department, Fish & Game News, Winter 1952: 1, 3, 6-7.
A detailed summary of Gabrielson's 69-page analysis of the New York fish and wildlife set-up. Various changes, and plans for effecting them, are discussed.

Clarke, C. H. D. WILDLIFE MANAGEMENT IN RELATION TO MULTIPLE USE IN EASTERN CANADA. Forestry Chronicle 28(1): 57-61. March 1952.
A general discussion of how wildlife fits into land use patterns. Where wildlife management and forest or agricultural management seem to be in conflict, "...the premises, objectives and methods of both should at once be critically examined, because it is altogether likely that one or both sides is in the wrong, in terms of the greatest ultimate good to all." Good farm or forest management is good for wildlife, but for maximum wildlife crops some adjustments may be needed. Fertile soils, and proper soil treatment, are important for all crops, including wildlife. Wet woodlands in Ontario offer special problems foresters have not solved. These tracts should be handled for water maintenance, grazing, game, fur, and some wood products, with the cow and the axe as tools.

Cowan, I. McTaggart. THE ROLE OF WILDLIFE ON FOREST LAND IN WESTERN CANADA. Forestry Chronicle 28(1): 42-49. March 1952.
Ecological (including successional) needs of forest wildlife species; cash value of moose and fur bearers in certain districts of British Columbia; importance of access in wildlife harvesting (almost no hunters go 2 miles from a road, while areas with good road nets are overhunted); reforestation problems caused by deer mice, deer, and sooty grouse; difficulty of handling pest, overpopulation, and successional problems in parks; need of adequate wintering areas for big game. Chief needs at present are: knowledge of precise needs of wildlife in different habitats; figures on possible yields of wildlife; techniques for controlling game damage to forest; better liaison between foresters and wildlife managers; and more foresters and game managers with ecological conscience extending to the entire forest, not merely to trees or game.

Dambach, Charles A. A LOOK AT GAME MANAGEMENT. Iowa Conservationist 11(1): 1, 4-5, 8, illus. Jan. 1952. [Reprinted from Outdoor America 16(6): 4-7, illus.]
We still do not know the true limiting factors, or can measure their effects but poorly. Hunting, heavy as it is, may be a minor factor in populations of some species. State-wide predator control is economically impractical. 200 full-time trappers probably could not control foxes in Ohio. Refuges for resident small game have not been successful, but have restricted the hunting area. Routine artificial stocking is a waste of money. Soil conservation, reforestation, and woodland management may help game, but when intensively applied may reduce game populations. Food and cover within the ranges of individuals is necessary. The major problem is applying to the land the things we know are needed. Farmers have little incentive to do this, and what a state department can do is little more than a drop in the bucket. Adequate improvements can be made only if farmers make them, with sportsmen providing incentive and technical men providing advice. The main job is to get hunters to recognize and accept their responsibility for cooperation with landowners and technicians.

Forbes, Stanley E., and John E. Harney, Jr. THE BULLDOZER, A TOOL OF WILDLIFE MANAGEMENT. Pennsylvania Game Commission, Harrisburg. Final Report P.-R. Project 31-R. vi + 136 p., illus. 1952.
A report on extensive trials of bulldozing for improvement of forest wildlife habitat. Properly used, the method provides a large supply of long lasting deer food at an average cost of $20 per acre. It benefits grouse, hares, and rabbits less than deer, and is of no value for bear. Bulldozing is most effective when used in pole timber of certain types. The trees are bent over but often live for years, yielding food from tops and sprouts. Data are given in detail on the costs and results of different tests, and several recommendations are made for choice of areas to be treated and best procedures.

WILDLIFE--MANAGEMENT--GENERAL--Continued

Gordon, Seth. FACT-FINDING AND POLICY-MAKING: WHO DOES WHAT? Wisconsin Conservation Bulletin 17(1): 9-14. Jan. 1952.
A pithy analysis of the relation of the research man to the administrator, and of both to commissions, legislatures, and the public. Public relations in one form or another are the key to progressive conservation. Game biologists should keep in touch with the public and with local game agents; their reports should be clear and dramatic. Long term or controversial problems should be farmed out to universities or other independent agencies.

Latham, Roger M., editor. SEMI-ANNUAL REPORT OF RESEARCH BIOLOGISTS TO THE HUNTERS. Pennsylvania Game News 23(1): 9-18, illus. April 1952.
With this issue the state inaugurates the policy of publishing twice yearly a popularized account of the work of each research biologist. Individual reports vary in length from 1 to 2 pages and also vary in the amount of data presented, but all are necessarily rather general. Those of the present issue deal with rabbit management (by W. C. Richter, C. R. Studholme, and G. L. Bowers), deer study (S. E. Forbes), behavior of released game farm turkeys (H. A. Roberts), and woodcock management (S. A. Liscinsky). Reports of this series will be of value to those wishing to keep in touch with work in Pennsylvania; but since they are essentially progress reports on projects of which more presumably will be published elsewhere, subsequent numbers ordinarily will not be noted here.

Luttringer, Leo A., Jr. WINTER CAFETERIAS FOR WILDLIFE. Pennsylvania Game News 22(10): 17-30, illus. Jan. 1952.
Descriptions and diagrams of several types of winter feeders, chiefly for game birds, that have been found practical.

Morgan, H. R. RECLAMATION PROJECTS AND WILDLIFE. North Dakota Outdoors 14(7): 8-9, 15, illus. Jan. 1952.
"What the North Dakota Game and Fish Department is doing to create fishing within the water impounded by dams being constructed by federal agencies and what it is doing to safeguard wildlife values by development on federal lands adjacent to these impoundments."

Winter, Kenneth B. and Ralph F. Honess. THE USE OF TRANSMISSION SPECTRA AND CRYSTALLOGRAPHY OF HEMOGLOBIN IN LAW ENFORCEMENT. Journal of Wildlife Management 16(1): 111-113, illus. Jan. 1952.
Spectra proved of limited value, but hemoglobin crystals are characteristic of genera and are much more sensitive in their differentiations than precipitin tests.

WILDLIFE--MANAGEMENT--HARVESTS AND HUNTING

Anonymous. HUNTING ROUND-UP. Tennessee Conservationist 17(2): 10-11, illus. Feb. 1952.
A non-detailed report on the 1951-52 Tennessee hunting season, and effect on game of previous hard winter. Decreases are reported only for squirrel and dove.

Anonymous. STATE'S 1951 SMALL GAME BAG ANNOUNCED. Pennsylvania Game News 22(12): 25. March 1952.
Estimated total numbers of various species harvested in state. Increases were shown by upland birds, raccoons, woodchucks, and waterfowl. Decreases were shown by cottontails and woodcock.

Black, C. T. OPERATION RAINBOW. Michigan Conservation 21(2): 28-32, illus. March-April 1952.
Report from the Rose Lake Wildlife Experiment Station, Michigan, on results of the hunting season recently ended. Deals mainly with take of pheasants, fox squirrels, and cottontails. The difficulty of overshooting cock pheasants when escape cover is present is reaffirmed.

WILDLIFE--MANAGEMENT--HARVESTS AND HUNTING--Continued

Mosby, Henry S. SOME RESULTS OF SUPERVISED FOREST GAME HUNTS IN VIRGINIA. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-8 p., illus.

Tells how such hunts are planned and discusses their advantages and costs. The author concludes that all public lands should be opened to game harvesting; that the public will pay extra and endure regulation for special hunts; and that waterfowl and big game are the only game suitable for such treatment because of the large number of hunter-hours they absorb per head removed.

Phelps, Chester F. A REPORT ON THE 1951-52 DEER, BEAR AND TURKEY KILL. Virginia Wildlife 13(4): 18-20, illus. April 1952.

Statistics by counties, Virginia.

Snyder, Robert L. and Robert L. Schueler. MEASURING THE SMALL GAME HARVEST ON THE CONEMAUGH RESERVOIR LANDS. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-9 p., illus.

It was desired to measure hunter bag on a large area with such a complex road net that road blocks were of little value. Personal interviews were used, but the mainstay of the program was the car tag. A small questionnaire was left at each parked car in area, with instructions for filling it out and leaving it nearby to be collected. 90% of the tags were recovered with useful data and the method was considered successful. Some techniques and complications of the car tag system are discussed.

WILDLIFE--MANAGEMENT--FARM

Caulk, L. D. (Mrs.) MANAGEMENT OF THE PETERSBURG WILDLIFE AREA. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-2 p.

This 2700-acre Delaware area of poor farm land was taken over by the state and managed for improved farming and several types of recreation, including dog trials and hunting. Food patches, border strips, rose hedges, and other wildlife aids were installed. Game has gradually increased over the last 3 years, and recreational use of the area has doubled.

Dickey, J. B. R. THE MULTIFLORA ROSE AS A TROUBLESOME WEED IN PASTURES AND ON IDLE LAND. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-2 p.

"Multiflora rose...has become a serious pest...in at least two sections of the northeast...In both cases birds, and perhaps browsing cattle, have scattered the seeds. Jungles have developed and spread along fences and around stumps and brush piles where the mower could not reach the young plants. These may be fine for the wild life, but one should hear the farmer's opinion of them... farmers cannot be expected to mow several times a year, often on rough land, simply to keep down an invader such as this. I have seen pastures with plenty of rose plants scattered over them...I have seen waste land, which might well have been planted to forest trees, a jungle of multiflora bushes...I have another pasture ¼ mile distant from this in which I have counted 75-100 Multiflora Rose plants coming up. Both of these were sodded pastures...Some of the plants are at least thirty feet across and where next to trees have climbed to the top. They have formed an impenetrable thicket, choking out all but the largest plant life within the last six or seven years...[It] has been misrepresented as a soil conservation plant. It chokes out all grass and leaves the ground bare underneath. The ground in my pasture has started to erode very badly...[It] is a grave threat to any farm land as you are not able to keep it under control. If pulled out, it will come up from the roots left in the soil...[A once good pasture] has been taken over by Multiflora Rose and is so dense that neither humans or animals can get through it."

WILDLIFE--MANAGEMENT--FARM--Continued

Einarsen, Arthur S. DITCHBANK PLANTING FOR EROSION CONTROL, WEED MANAGEMENT AND UPLAND GAME COVER. Oregon State Game Commission Bulletin 7(4): 6-7, illus. April 1952.

New canal banks in the West are dry and unstable. They tend to erode easily and to grow up in undesirable weeds. Aridity makes it difficult to get desirable plants established. This problem was solved by spraying the banks from a boat. A light, portable boat, and an efficient, portable, commercially available pump were used. The ground was prepared by drag harrow and several kinds of seeds were planted, with different kinds being planted at different levels on the bank. A good stand was obtained. Such planting should be done as soon as possible after the bank is formed or weeds may gain dominance. The plantings may aid pheasants the first season, but the greatest long term benefit is in reduced canal maintenance costs. A cost analysis is given. The author suggests that the new method should be of value in producing waterfowl nesting cover on new impoundments in arid country.

Greenwell, Guy A. FARM PONDS - THEIR UTILIZATION BY WILDLIFE. Missouri Conservation Commission. 1-23 p., illus. Feb. 1952.

The use of various types of farm ponds by wildlife of many kinds is given in tables and graphs. Management recommendations are made. Summary: "1. Fencing off an area from one to one-and-a-half acres in size around the pond permits the development of ideal wildlife cover. A larger area is unnecessary and, judging from observations made in this study, is seldom fully planted and developed. An area much smaller than this provides insufficient food and cover for sustained use by game and furbearers. 2. All ponds are used at some time by some form of wildlife, but proper attention to location of the pond site is important to secure highest use by valuable species. 3. Grazing is exceedingly destructive to wildlife cover and food. Pond areas must be fenced, and the fences must be maintained, if potential wildlife values are to be realized. 4. Ponds ranging in size down to less than one-fourth acre of water area may receive heavy use by wildlife if they are properly located and protected. 5. Heavy average use by wildlife of farm ponds, and exceedingly heavy use of high-quality ponds, sustain the policy of the Commission in stimulating the construction of high-quality ponds, and establish the desirability of continued effort in this program."

King, Malcolm E. SMALL REFUGES IN A FARM GAME PROGRAM. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-6 p.

Maryland found that refuges alone did little good for farm game. The state turned to small refuges (5-30 acres) managed and improved by plantings and by protection from fire and grazing. The state now has over 600 of these areas, all spaced at least 2 miles apart. They are intended to provide breeding nuclei of game for surrounding areas. They are considered successful. [The value of "seed stock" refuges for farm game is in controversy. Further quantitative data on the subject are desirable.]

Perry, Robert F. SOME LIMITATIONS ON FARM GAME COVER DEVELOPMENT IN NEW YORK. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-6 p.

In the Lake Plains area of Northwestern New York, rabbits and pheasants are so abundant as to be a nuisance to farmers. Heavy hunting does not control them. Best hunting occurs where dead-end or intermittent hedges favor hunters. In such agricultural areas, wildlife habitat improvement is not desirable unless done selectively on a field by field basis. Author emphasizes that habitat improvement is not justified anywhere unless food, cover, or water deficiencies exist.

WILDLIFE--MANAGEMENT--FARM--Continued

Roberts, Oscar T., Jr. and Norman G. Wilder. POLICIES AND METHODS FOR EXPANDING FARM GAME DEVELOPMENT PROGRAMS. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-5 p.

Details of the Delaware farm-game program. 200 farms per year are to be developed for game. The measures used are adapted to the site and range from marsh development to border plantings and woodlot protection. State technicians may prepare the site with heavy equipment and put in the plantings. Aggressive selling and service to the landowners are stressed. Work is done on both posted and open lands. The cost per unit is high, but the work is going ahead full speed.

Rosene, Walter, Jr. CARE AND MAINTENANCE OF BICOLOR LESPEDEZA. Soil Conservation 27(7): 151-153, illus. Feb. 1952.

50 million plants of bicolor are produced annually in the Southeast and the number is increasing. This paper tells how to plan the plantings, how to prepare and fertilize the site, how to plant, how to judge proper growth, how to maintain vigor in plantings, and how to rejuvenate plantings when they start to deteriorate after about 3 years. A considerable investment in time, fertilizer, and farm equipment seems to be necessary.

Terrill, Harold V. THE MAGIC BLANKET. Missouri Conservationist 13(2): 7, 13, illus. Feb. 1952.

Combination plantings of sericea lespedeza and reed canarygrass provide excellent erosion control on gully and ditch banks as well as fine shelter and emergency food for wildlife. The clumps "formed an overhanging mat which resulted in almost unbroken lines of canopies, each similar to a miniature Meissen hut, along the ditches thus planted."

Tilt, C. R. EXPERIMENTS TO DETERMINE THE VALUE OF LESPEDEZAS AS PLANTS TO BE USED IN WILDLIFE HABITAT IMPROVEMENT IN ONTARIO. Presented at the 6th Annual Technical Sessions of the Advisory Committee on Fisheries and Wildlife, Research Council of Ontario, McMaster University, Hamilton, Ontario. Feb. 22-23, 1952. 1-3 p.

Several species and varieties of Lespedeza were field-tested at Maple, Ontario. Only L. bicolor natob flowered to a significant extent and even it set but little seed. The experiments are being continued.

Whalen, John. SMALL MARSH PROGRAM TIOGA COUNTY, NEW YORK. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-10 p.

Tells how the program is promoted and discusses costs and benefits. The marshes are mainly for ducks but aid other game and fur bearers. They also have values in fire protection, flood control, and stock watering.

WILDLIFE--MANAGEMENT--PREDATION AND PREDATOR CONTROL

Anonymous. SUMMARY OF BOUNTY QUESTIONNAIRES. Pennsylvania Game Commission. 1-5 p. March 28, 1952.

A table that lists by states the animals for which bounties are paid, amounts paid, and the paying agency (county, state, or other unit). Bounties are paid in 27 states; none are paid in 21 states.

Johnson, Frank M. GAME MANAGEMENT VIEWS [WHY WEST VIRGINIA HAS NO BOUNTY]. West Virginia Conservation 16(1): 29-31. April 1952.

The state used to have bounties on foxes and wildcats but abolished them. Figures show that most of the animals would have been taken bounty or no bounty, and that bounties cost far more than they were worth.

WILDLIFE--MANAGEMENT--PREDATION AND PREDATOR CONTROL--Continued

Miner, Henry D. PREDATOR CONTROL. West Virginia Conservation 15(10):11-14, 30, illus. Jan. 1952.

Using many interesting examples, the author points out that predator control is often futile if not downright undesirable. Among experts, "...the consensus is that in the past we have greatly over-emphasized the importance of predator control and under-emphasized the importance of escape cover, and its location in relation to the food supply."

WILDLIFE--REPORTS OF ORGANIZATIONS

Tanner, N. E. ANNUAL REPORT OF THE DEPARTMENT OF LANDS AND FORESTS OF THE PROVINCE OF ALBERTA FOR THE FISCAL YEAR ENDED MARCH 31st 1951. Edmonton. 1-98 p., illus. 1952.

The report of the fish and game commissioner (pages 46-75) includes discussions of fish and game conditions (generally favorable except for moose), changes in regulations, predator control policies, new legal status of beaver (now largely property of landowner), fishery statistics, numbers of various classes of waterfowl and upland game birds bagged per zone, big game kill by species, and deer and elk kill by districts. Data on take are presented by graphs.

Temple, J. Lawrence. YOUR GAME DIVISION...PAST, PRESENT, FUTURE. Oklahoma Game and Fish News 8(2): 3-8, illus. Feb. 1952.

A review of the history and present policies and activities of the Oklahoma Game Division.

MAMMALS--FAUNAS AND MANUALS

Grimm, William C., and Ralph Whitebread. MAMMAL SURVEY OF NORTHEASTERN PENNSYLVANIA. Pennsylvania Game Commission, Harrisburg, Final Report P.-R. Project 42-R: 1-82, illus. 1952.

This is the last of the 6 survey reports. Together they cover the state and provide a good source of information on the vegetation, soils, climate, and physiography of regions of the state. Mammals are taken up species by species, with much information on past and present distribution, status, and habitat. Information is given on habits and reproduction when it is available. In the present report, tables show by counties the numbers of animals taken legally as game or furbearers or submitted for bounty. The authors recommend that deer be more intensively studied and managed (overpopulation and stunting was found); that the otter be given much better protection (it is the only valuable mammal of the region now decreasing and endangered); that beaver be more encouraged on state lands because their ponds benefit waterfowl; that the bounty system be abolished, with professional trappers doing any needed local predator control; and that any rabies control campaign be supervised by competent personnel and accompanied by strict quarantine of dogs, cats, and other domestic animals. [A minor but annoying feature of the present report is the use of several novel or outdated patronymic common names, such as "Fischer's deer mouse" for the wood-mouse. We would be farther ahead if workers would follow the well-considered system of common names proposed by Dice (1937, J. Mamm. 18(2): 223-225).]

Roberts, Harvey A. and Robert C. Early. MAMMAL SURVEY OF SOUTHEASTERN PENNSYLVANIA. Pennsylvania Game Commission, Harrisburg. Final Report Pittman-Robertson Project 43-R. 1-70 p., illus. 1952.

Each species is treated under the headings "Distribution," "Habitat," and "Notes." Under "Notes" information is given on abundance and fluctuations, foods, reproduction, stocking history, suitability of habitat, economic status, and miscellaneous observations. It is not always possible to differentiate compiled material from original observations. Five pages are devoted to description of the region. In the back of the booklet there are data on the reproductive condition of individuals of 15 small mammal species, and a table of the fall and winter foods of 22 opossums, 54 skunks, 15 weasels, and 9 raccoons. Recent increases or decreases of most species are summarized in one

MAMMALS--FAUNAS AND MANUALS--Continued

section. The authors recommend, among other things, that foxes should be drastically reduced by hunters and landowners [apparently bounty is rejected]; that the state should acquire small management areas in heavily farmed areas; that rabbit stocking should be stopped and the money put on habitat improvement; and that muskrat regulations should be made on a regional rather than a statewide basis.

MAMMALS--PARASITES AND DISEASES

Colson, Ralph B. and Warren H. McKeon. THE WILDLIFE RABIES CONTROL PROGRAM IN NEW YORK. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-6 p.

The state is attacking rabies by trapping foxes intensively in broad zones (about 50 miles wide) around areas of infection. This apparently blocks spread of the disease. Within areas of infection, dogs are vaccinated and state aid is given counties in fox control.

Tierkel, Ernest S., Guillermo Arbona, Alfonso Rivera, and Abel de Juan. MONGOOSE RABIES IN PUERTO RICO. Public Health Reports 67(3): 274-278, illus. March 1952.

A recent outbreak is primarily an epizootic in the mongoose, with secondary transmission to dogs and other animals. Control by trapping is being attempted. The mongoose has been a failure in rat control and is an unmitigated pest because of its destruction of native animals and poultry.

MAMMALS--SHREWS, MOLES, BATS

Locker, Betty, and Robert Rausch. SOME CESTODES FROM OREGON SHREWS, WITH DESCRIPTIONS OF FOUR NEW SPECIES OF HYMENOLEPIS WEINLAND, 1858. Journal of the Washington Academy of Sciences 42(1): 26-31, illus. Jan. 1952.

Discusses 7 species, all from Sorex v. vagrans.

MAMMALS--RABBITS AND PIKAS

Handley, C. O. STOCKING COTTONTAIL RABBITS. West Virginia Conservation 16(1): 18-19. April 1952.

The arguments against rabbit stocking are reviewed and habitat improvement is urged as a substitute. Stocking fails because of territorial conflicts, high fatality rate in captivity, disease introduction and transmission, increased predation, and because most areas have as many rabbits as they will carry. Introduction of more is liable to result in lowering the population rather than increasing it.

Martin, E. D. and Daniel Atzenhoefer. RABBITS HAVE THEIR UPS AND DOWNS. Ohio Conservation Bulletin 16(3): 10-11,31, illus. March 1952.

The Ohio rabbit population is low again, but no doubt will recover as it has before. Importation and rabbit farms will not help. The Milan Rabbit Farm, operated 1932-36, was a 270-acre tract fenced and improved for rabbits in every way. 9,000 rabbits were poured into it during the 5 years, but only 143 were taken out. Disease presumably took the rest. Importation is useless because local brood stock is ample, even large introductions are but a drop in the bucket, and survival of imports is very low. Figures are given to prove these points. Seven game club activities are recommended as more profitable than rabbit importations. They include habitat improvement, conservation education, and camp development.

Wallace, Herbert S. POPULATION DYNAMICS OF THE MEARNS COTTONTAIL (SYLVILAGUS FLORIDANUS MEARNSII ALLEN) IN THE IOWA STATE COLLEGE ORCHARD AND ARBORETUM. PhD thesis 1106, Iowa State College, 1950. Long abstract in Iowa State College Journal of Science 26(2): 313-315. Jan. 1952.

Live-trapping and nest study. "Changes in population numbers and movements of populations were described in reference to vegetation, weather,

MAMMALS--RABBITS AND PIKAS--Continued

activities of man, predation and other influences.....A series of population formulas and a graphic method for their solution are presented." Use of trap-night computations involved serious errors. Productivity, growth, and dispersal are discussed. Hunting by dogs was an important decimating factor.

MAMMALS--RODENTS--GENERAL AND CONTROL

Anonymous. CHARACTERISTICS OF COMMON RODENTICIDES. U. S. Fish and Wildlife Service, Leaflet WL 337: 1-4. Jan. 1952.
A detailed table presents data on properties, preparation for use, and hazards of 12 of the most important poisons. The text discusses their advantages and disadvantages.

Anonymous. GAS CHAMBER FOR GOPHERS. Reclamation Era 38(2): 27. Feb. 1952.
Mechanical drawings of and brief notes about the Batzner compressed air device for forcing cyanide powder into burrows. Information about the development and value of this tool were published in the September 1951 issue of the same journal.

Harris, Kenton L. and others. AN INVESTIGATION OF INSECT AND RODENT CONTAMINATION OF WHEAT AND WHEAT FLOUR. Journal of the Association of Official Agricultural Chemists 35(1): 115-158, illus. Feb. 1952.
Part of the summary of this detailed article states: "The rodent pellet pickout on a 1000 gram sample is a practicable test which requires no special training and no laboratory equipment. This test is a better indication of probable flour contamination than is the test for detached rodent hairs in the wheat."

Welch, Jack F., and Millard Graham. RODENT REPELLENT STUDIES WITH "ARASAN"-TREATED SEED CORN. Plant Disease Reporter 36(2): 57-59, illus. Feb. 1952.
Arasan (tetramethyl thiuram disulfide, 75% wettable powder), a seed disinfectant, was kept on the seeds by a 5% methocel sticker. In one trial, treated seeds were offered to caged mice, chiefly Peromyscus. In a second trial, seeds were planted in flats and the flats exposed to a mouse colony. Considerable protection was afforded when 10 or more ounces of Arasan was used per bushel. In the planting test, 90% of the seed treated at the rate of 20 ounces of Arasan per bushel sprouted and was undamaged, while only 24% of the untreated corn survived. The tests constituted optimum conditions for rodent attacks. Stored corn can be protected from wild rats and house mice if dusted with 2 ounces of 50% Arasan per bushel.

MAMMALS--SCIURIDS

Bertram, E. Cooper. PROJECT DESIGNED TO OBTAIN DATA ON SQUIRREL HABITS AND HABITAT. Kentucky Happy Hunting Ground 8(1): 30-31, illus. Jan. 1952.
Includes summary of data from 1996 hunts by 286 persons: hunter success, time per squirrel, numbers of fox and gray, reproductive condition of females. 54% of the squirrels seen were bagged.

Curtis, James D. DESTRUCTION OF PAPER TREE TAGS BY SQUIRRELS. Journal of Forestry 50(3): 220-221. March 1952.
Red squirrels in Idaho destroyed many tags attached to trees for forestry purposes. The author suggests use of aluminum tags, or paper tags treated with repellent, if a suitable repellent can be found.

Uhlig, Hans G. SOME RESULTS OF SQUIRREL HUNTING ON WEST VIRGINIA STATE LANDS. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-20 p., illus.
The gray squirrel is the only species considered. Much information is given on hunting pressure, hunting statistics, annual production, sex ratios, and weights. Heavy hunting pressure usually was followed by increased rearing success the next year. It may prove possible to estimate number of squirrels

MAMMALS--SCIURIDS--Continued

killed, and number of gun hours, if number of successful and unsuccessful hunters is known. The season could be lengthened without many more squirrels being killed.

Wingard, Robert. THE LOW-DOWN ON "SCIURUS CAROLINENSIS." Pennsylvania Game News 22(11): 9-13, illus. Feb. 1952.
Popular review of history and life history.

MAMMALS--BEAVER

Anonymous. THOSE PESKY BEAVER. North Dakota Outdoors 14(7): 6-7, 15, illus. Jan. 1952.
There are now beaver in most suitable areas of North Dakota, so live-trapping of nuisance colonies is no solution. When a complaint is made, a warden inspects the area, determines how many beaver should be removed, and the state issues a permit for their removal. Few people can catch all that are permitted and beaver are still increasing. The ice is thick when pelts are prime, which complicates trapping. Diagrams are given of good under-ice and underwater sets. Beaver are hampering the tree planting program in the state by felling many of the small trees.

Hunt, John H. SOME MAINE BEAVER CARCASS STUDY RESULTS. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-8 p.
Maine beaver have from 1 to 9 young, averaging 3.3 in the northern zone and 3.8 in the central zone. The open season is January 1 to February 7, but should be later to increase likelihood that surviving females have mated. Ovarian follicles ripen during open season. Height of breeding seems to be about middle of February. Peak of pelt primeness occurs after open season, in late February and March. Size of beaver varies a little between regions of state. Age class criteria for individuals of a colony are easily worked out, but none work over whole state. Parasitism (1 fluke, 1 nema) was common but apparently harmless.

Lawrence, William H. EVIDENCE OF THE AGE OF BEAVER PONDS. Journal of Wildlife Management 16(1): 69-79, illus. Jan. 1952.
Describes use of tree and shrub growth rings and various historical evidence such as previous surveys and personal interviews with residents.

Leighton, Roger S. and James A. Lee. A PROGRESS REPORT ON A TECHNIQUE TO CONTROL WATER LEVELS IN BEAVER IMPOUNDMENTS. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-4 p.
Describes successful means of keeping lower water levels in troublesome beaver ponds. Large, perforated pipes are installed in the dams and protected in various ways. It is thus possible to preserve colonies that otherwise would have had to have been destroyed.

MAMMALS--MUSKRAT AND NUTRIA

Coulter, Malcolm W. A COMPARISON OF SPRING AND AUTUMN MUSKRAT TRAPPING IN MAINE. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-14 p.
Trappers do not agree as to whether spring or fall seasons are better. Study of biological and economic factors reveals that the fall season is preferable. Its advantages are: less competition between trappers and consequently less overtrapping of brood stock; much less mortality to other valuable wildlife; no conflict with breeding seasons; more muskrats and fewer damaged ones are present; returns to trappers are higher. The fall season is highly beneficial to ducks and minks, many of which are taken in spring trapping, when minks are worthless and ducks are preparing to breed.

MAMMALS--MUSKRAT AND NUTRIA--Continued

Harris, Van T. and David E. Davis. DATA CONCERNING RACCOONS AND MUSKRATS ON TIDAL MARSHES IN MARYLAND. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-10 p.

The percentage of muskrat houses broken into by predators (chiefly raccoon) varied in different months from 19 to 78% and is highest during the muskrat breeding season. Some houses are disturbed repeatedly. Occupied houses are attacked more often than others. Raccoon disturbance is less in areas where men are active in marsh. One or a few raccoons do most of the damage at a given time and place. Data are given on foods from 150 stomachs and 551 scats of raccoon. Muskrat appeared in 19% of scats; of these, 44% were half-grown or smaller. Microtus and Oryzomys, also eaten, live in walls of muskrat houses and may be reason for some of the disturbance by raccoons.

MAMMALS--HOUSE RATS AND MICE

Davis, David E. RELATION OF RAT CONTROL TO FARM GAME. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-14 p.

A farmed island in Chesapeake Bay has had tremendous rat populations at various times. Poisoning had but limited, temporary value. Reduction of harborage and quick, early harvest of corn by machine have greatly reduced the population, but these changes have not injured rabbit and muskrat populations. Cattle grazing and other agricultural practices have been intensified, but their effect on the wild animals is not yet clear. Many data are given on the rat populations. A table shows the contents of owl pellets for 5 years.

Gaines, T. B. and W. J. Hayes. BAIT SHYNESS TO ANTU IN WILD NORWAY RATS. Public Health Reports 67(3): 306-311. March 1952.

Rats remained bait shy to this poison for at least 3 or 4 months after one sub-lethal dose. "In spite of its deficiencies, ANTU presents the advantage of safety and, when used for the first time against populations of Norway rats, the advantage of effectiveness."

Schiller, Everett L. STUDIES ON THE HELMINTH FAUNA OF ALASKA V. NOTES ON ADAK RATS (RATTUS NORVEGICUS BERKENHOUT) WITH SPECIAL REFERENCE TO HELMINTH PARASITES. Journal of Mammalogy 33(1): 38-49, illus. Feb. 1952.

Rats became established on this Aleutian island about 1945 and have thrived around military installations and in the wild. Both they and the introduced arctic foxes are a severe threat to native birds and should be exterminated if possible. There are no native mammals to complicate matters. Incidence of parasites, especially Trichinella, is tabulated and discussed. Few of the larger rats have Trichinella, which suggests a lethal effect of this worm. Worms of dog, fox, and eagle are mentioned.

MAMMALS--OTHER RODENTS

Howard, Walter E. A LIVE TRAP FOR POCKET GOPHERS. Journal of Mammalogy 33(1): 61-65, illus. Feb. 1952.

Describes construction and operation.

Ingles, Lloyd G. THE ECOLOGY OF THE MOUNTAIN POCKET GOPHER, THOMOMYS MONTICOLA. Ecology 33(1): 87-95. Jan. 1952.

Habitat, home range, nests, commensal arthropods, foods, caches, reproduction, populations, parasites, weights, longevity, pelage, economic effects. Some of the author's conclusions follow. The animals are solitary - home ranges are not connected. The size of an underground home range varies from 80 to 2016 square feet (10 to 120 linear feet); ranges are larger under snow. Weights are greater at the close of winter than at other times. One third of the fall population consists of juveniles. Average longevity is less than 2.9 years and turnover is complete between 4 and 5 years. The small breeding population is augmented each year by 1 or 2 animals from other areas. There is

MAMMALS--OTHER RODENTS--Continued

no evidence that the animal is harmful to grazing interests. On the contrary there is considerable evidence that the species is beneficial as a soil builder and a conserver of water.

Jameson, E. W., Jr. FOOD OF DEER MICE, PEROMYSCUS MANICULATUS AND P. BOYLEI, IN THE NORTHERN SIERRA NEVADA, CALIFORNIA. Journal of Mammalogy 33(1): 50-60, illus. Feb. 1952.

Results of examining hundreds of stomachs representing each month. Species, seasonal, and habitat differences in the foods are discussed. Deer mice eat and gather large quantities of tree seeds, thus hindering reforestation at times, but they also eat vast numbers of insects, including many that are destructive to tree seedlings. "The insect-eating habit of deer mice is still little appreciated, but in this respect they may be far more useful than insectivorous birds: deer mice are generally far more numerous than small birds, and they remain in the coniferous forests throughout the year.....There appear to have been few instances of rodent control giving good protection to seed spots.....At the present time there seems to be no perfect poison or satisfactory repellent, but it seems far more desirable to emphasize research on the latter type of protection."

Pournelle, George H. REPRODUCTION AND EARLY POSTNATAL DEVELOPMENT OF THE COTTON MOUSE, PEROMYSCUS GOSSYPINUS. Journal of Mammalogy 33(1): 1-20, illus. Feb. 1952.

Vaginal cycle, ovulation, unreliability of evidence from external genitalia of the female, gestation, parturition, litter size, development, maternal care, time of sexual maturity, growth, seasonal breeding, sex ratio.

Sealander, John A., Jr. THE RELATIONSHIP OF NEST PROTECTION AND HUDDLING TO SURVIVAL OF PEROMYSCUS AT LOW TEMPERATURE. Ecology 33(1): 63-71. Jan. 1952.

Report of experiments. "It is believed that behavior adjustments such as nest-building and huddling constitute thermoregulatory activities which are enhanced at low temperatures and may be responsible for increased toleration of low temperatures during winter.....both nest protection and huddling prolonged the survival time of deer mice subjected to low temperatures in the absence of food and water."

Schiller, Everett L. HYMENOLEPIS JOHNSONI, N. SP., A CESTODE FROM THE VOLE MICROTUS PENNSYLVANICUS DRUMMONDII. Journal of the Washington Academy of Sciences 42(2): 53-55, illus. Feb. 1952.

MAMMALS--FURBEARERS--GENERAL

Thomas, Earl M. THE FUR-BEARING MAMMALS OF WYOMING, THEIR LIFE HISTORIES AND IMPORTANCE. Wyoming Wildlife 16(2): 4-7, 34-37, illus. Feb. 1952.

First of a proposed series. This installment treats the history of the fur trade in Wyoming, and the effects of man and fur-bearers on each other.

Uhler, Francis M. and Leonard M. Llewellyn. FUR PRODUCTIVITY OF SUBMARGINAL FARMLAND. Journal of Wildlife Management 16(1): 79-86. Jan. 1952.

Report on fur animals trapped in 3 years on a 1000-acre tract of the Patuxent Refuge, Maryland. Species involved were opossum, muskrat, skunk, raccoon, red fox, and gray fox. The average income from fur sales was 40 cents per acre per year. Habitats are classified as to productivity, and some suggestions are given for improving areas for fur animals.

MAMMALS--BEARS

Uhlig, Hans G. SOME BEAR FACTS. West Virginia Conservation 15(12): 34-35. March 1952.

West Virginia has a hunting season for bears, but so many are killed out of season that the population and its range are shrinking rapidly. In 1949 the reported kill was 181 on 1,700 square miles, but by 1951 the reported kill

MAMMALS--BEARS--Continued

was only 55 on 375 square miles. Unfortunately, 2 counties have a $10 to $15 bounty on bears. Bears will be hard to restore, for they are not prolific. 24 pairs of deer could increase to more than 2,000 in 10 years, but the increase from an equal number of bears would be less than 400. No plan to benefit the bear is mentioned.

MAMMALS--RACCOON AND RINGTAIL

Gale, Larry R. RACCOON RANCH STATUS. Kentucky Happy Hunting Ground 8(1): 12-13, illus. Jan. 1952.

Attributes high raccoon population in Kentucky to a series of favorable reproductive seasons, wise legal restrictions, low pelt value, and release of brood stock. At the Kentucky Game Farm, average litter consists of 3 or 4 young (born mostly in April or May) and most raccoons do not breed until their second year. Young are released in underpopulated areas in mid-August. The ranch apparently is increasing its capacity.--L. M. Llewellyn.

Llewellyn, Leonard M. GEOGRAPHIC VARIATION IN RACCOON LITTER SIZE. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-7 p.

Work on raccoon litter size is reviewed, and original data are given for several localities in eastern U. S., especially Maryland. Averages varied from 1.9 in coastal North Carolina to 2.4 at the Patuxent Refuge, Maryland, and 5.0 at the Montezuma Refuge, New York. The breeding potential at the Patuxent Refuge is estimated as 1.3 young per female. Allowing for mortality, it appears that the actual fall population is only 1.5 times the spring population. The question is raised whether this is enough to provide for hunting take and all other winter mortality without lowering the population.

Sanderson, Glen C. RACCOON STUDIES IN IOWA. Iowa Conservationist 11(3): 1, 23, illus. March 1952.

The author gained much information on raccoons by enlisting aid of fur dealers who buy carcasses and skin the animals. Litter size can be determined by collecting uteri and counting placental scars. Bacula give age index. Sex ratio, weights, number breeding and other information also can be gained by such examinations. Average weights: adult males, 17.1 lbs., juvenile males, 11.6; all females, 13.7. The largest coon weighed 28 lbs. Sex ratio in 1949-50 was 47.5 males to 52.5 females; 1950-51 sex ratio was 45 to 55. Young of the year made up 65% of the population.--L. M. Llewellyn

MAMMALS--MUSTELIDS

Allen, Durward L. FUR BEARER OR FOR WORSE. Field and Stream 56(12): 42-43, 134-137, illus. April 1952.

Entertaining, anecdotal account of the biology of striped skunks. Based on live-trapping and management research.

Allen, E. Ross and Wilfred T. Neill. NOTES ON THE ABUNDANCE OF THE EVERGLADES MINK. Journal of Mammalogy 33(1): 113-114. Feb. 1952.

This mink has been considered very rare. Evidence is given that it is (or was) fairly common, at least at Lake Okeechobee.

Elder, Wm. H. FAILURE OF PLACENTAL SCARS TO REVEAL BREEDING HISTORY IN MINK. Journal of Wildlife Management 16(1): 110. Jan. 1952.

Study made on freshly killed fur-farm animals of known breeding history. Nearly all scars had been resorbed before pelt harvest in December. "Neither the length, width, nor appearance of the uterus or vagina proved a criterion of age or breeding success."

MAMMALS--MUSTELIDS--Continued

Lynd, F. T., and George E. Short. MICROFILARIA IN BRAIN TISSUE OF A SKUNK. Journal of the American Veterinary Medical Association 120(902): 297. May 1952.
A striped skunk attacked 2 dogs at Stillwater, Oklahoma, and was shot. The head, turned in for rabies test, was negative for rabies but had pathology (described) as a result of an abundance of small, unidentified nematodes in the brain.

Remington, Jack D. FOOD HABITS, GROWTH, AND BEHAVIOR OF TWO CAPTIVE PINE MARTENS. Journal of Mammalogy 33(1): 66-70, illus. Feb. 1952.
Limited observations on topics indicated. Graph of growth.

Seagears, Clayt. MARTEN PROBLEM. The New York State Conservationist 6(4): 40, illus. Feb.-March 1952.
Popular account of marten breeding biology and effect of artificial light. When the U. S. Fur Animal Experiment Station at Saratoga was closed, most of its animals were killed, but the state obtained 4 mutation foxes and 9 marten and hopes to continue experiments with them.

MAMMALS--DOGS, WOLVES, FOXES

Anonymous. COYOTE BOUNTIES. The New York State Conservationist 6(4): 34. Feb.-March 1952.
Coyotes are gradually increasing in the Adirondack region despite county bounties. The counties, their bounty payment, and their coyote take, 1946-1951, are listed.

Anonymous. DOGS REPLACE GUNS AS WEAPON IN COYOTE HUNTING. Outdoor Nebraska 30(2): 12-13, illus. Spring 1952.
Tells of hunting for sport in Eastern Nebraska. Coyotes are located by plane and dogs are set on the trail to run down and kill them. Relays of dogs are used when needed. Greyhounds and staghounds are utilized but the cross-breed from them is better. The top kill in one day was 12 coyotes. 32 were taken in one week. Bounty on the scalps is received by the pilot. The group of hunters avoids overhunting coyotes in an area, and tries to avoid killing females in breeding season. [Bounty is thus paid to people who are conserving the stock for sporting purposes.] Stomachs of a number of the coyotes contained chiefly field mice and gophers.

Sand, George X. LETS STOP THE SELF-HUNTING DOG. Pennsylvania Game News 22(11): 4-8, illus. Feb. 1952.
The author cites examples of and figures on predation by dogs, some of them valuable hunting dogs or family pets. He estimates that there are at least 26 million dogs in the U. S. Wardens kill about 25,000 per year in Virginia. In January, 1948, dogs killed 1000 deer in ten days in N. Y. State. They also do much damage to gamebirds and livestock! Suitable laws, good enforcement, and sportsman cooperation are urged.

Schlotthauer, Carl F. and Joseph M. Janes. THE TIME OF CLOSURE OF THE LOWER FEMORAL EPIPHYSES AND UPPER TIBIAL EPIPHYSES IN THE DOG AS DETERMINED BY ROENTGENOGRAM. American Journal of Veterinary Research 13(46): 90. Jan. 1952.
May be of value in aging other canids. "From this study of 8 dogs, it appears that according to roentgenograms the lower femoral epiphyses and the upper tibial epiphyses close at about the age of 10 months."

MAMMALS--CATS

Long, William J. LEARNING FROM THE MOUNTAIN LION. Sports Afield 127(3): 30-31, 63-68, illus. March 1952.
Narrative account of personal experiences with pumas.

MAMMALS--CATS--Continued

Peterson, Randolph L., and Stuart C. Downing. NOTES ON THE BOBCATS (LYNX RUFUS) OF EASTERN NORTH AMERICA WITH THE DESCRIPTION OF A NEW RACE. Contributions of the Royal Ontario Museum of Zoology and Palaeontology no. 33: 1-23, illus. April 1952.
A review of the races of bobcats in Eastern North America. The ranges of the races are mapped, their characters are analyzed, and a new race is described from the Lake Superior region.

Peterson, Sam. [PUMA ATTACKS CHILD AND MAN] Idaho Wildlife Review 4(3): 15, illus. Jan.-Feb. 1952.
A letter to the editor tells of a puma that carried off a child, but was frightened away before doing much harm. Later a large female puma, believed to be the same one, was killed when it attacked a man. Near Wallace, Idaho.

MAMMALS--BIG GAME--GENERAL

Anonymous. LEGAL BIG GAME KILL. Pennsylvania Game News 23(1): 59. April 1952.
Pennsylvania. Tabulation by counties for deer and bear, 1950 and 1951. Data are given separately for antlered and antlerless deer.

Anonymous. THE 1951 BIG GAME HARVEST. Wyoming Wild Life 16(1): 4-6, 35-38, illus. Jan. 1952.
Wyoming. Discusses difficulties and means of getting hunter success data, and the need of controlling the elk season while it is under way. One table gives total kill, average weight hog dressed, and pounds of big game meat for sex and age groups of each species of the 1951 harvest. Other tables give hunting statistics, big game license sales 1942-1951, big game harvest 1942-1951 (by species), and 1951 harvest per management unit.

Anonymous. THESE ARE YOUR WYOMING BIG GAME ANIMALS. Wyoming Wild Life 16(2): 7-19, illus. Jan. 1952.
Discussions by species, with notes on 1951 hunt and its success, table of harvest, 1942-1951, and description of physical characteristics and habits. The article is really a valuable and attractive handbook of Wyoming big game.

Berner, Lester M. PRELIMINARY BIG GAME REPORT. South Dakota Conservation Digest 19(2): 8-9, illus. Feb. 1952.
South Dakota, 1951. Licenses sold, estimated harvest, and special seasons for antelope, elk, and deer.

Kelker, George Hills. YIELD TABLES FOR BIG GAME HERDS. Journal of Forestry 50(3): 206-207. March 1952.
Presents and discusses a yield table for determing the fraction of the summer deer herd that must be removed to give various sex ratios after the hunting season. The average number of fawns produced by adult does, and the relative number of does killed, must be known. The table should have much value in deciding upon proper kill schedules, and in determing what the effect of various kill schedules would be.

Mace, Robert U. OREGON'S BIG GAME RESOURCES. Oregon State Game Commission, Portland. 1-34 p., illus. 1952?
Essentially a sportsman's handbook on 7 forms of hoofed game. Carnivores are not considered. Maps show present distribution and sketches show diagnostic characters. The text briefly discusses biology, numbers, and management. The State Game Commission has had authority to regulate hunting since 1939, and the herds are now managed on the basis of factual information.

MAMMALS--BIG GAME--GENERAL--Continued

McDermott, P. J., Jr. EXPERIENCE SHOWS ARTIFICIAL FEEDING HAS MANY DETRIMENTAL EFFECTS ON GAME. Idaho Wildlife Review 4(4): 8-9, illus. March-April 1952.

Artificial feeding of big game in winter is expensive (about 5¢ a day per deer), leads to destruction of range in region of feeding ground, and makes game semidomesticated and less vigorous. Idaho still does emergency feeding, however, and finds it can be done successfully for as long as 8 weeks. Alfalfa and protein cubes are the best supplements. The state does not plan to extend the feeding program, for it considers feeding a poor substitute for herd control.

McDermott, P. J., Jr. REPORT OF BIG GAME DIVISION SHOWS HISTORY AND STATUS OF IDAHO GAME. Idaho Wildlife Review 4(3): 4-7, illus. Jan.-Feb. 1952.

Concise account of history, present management, and numbers of each form of big game in Idaho. Data are given on the hunting take and type of hunt used for each. Caribou, bighorn, mountain goat, and grizzly are currently protected. It is estimated that there are only 24 caribou and 38 grizzlies in the state.

MAMMALS--HOOFED (Except deer)

Benson, D. A. TREATMENT OF A SICK MOOSE WITH COBALTOUS CHLORIDE. Journal of Wildlife Management 16(1): 110-111. Jan. 1952.

A case of "moose sickness" was successfully treated. The author implies that cobalt deficiency is connected with this disease.

Cooney, Robert F. ELK PROBLEMS IN MONTANA. Journal of Range Management 5(1): 3-7. Jan. 1952.

Transplanting and protection brought the herd from near extinction to 40,000. Local conflicts are being solved to the satisfaction of all parties through local cooperative committees. Foods of elk are much like those of cattle but heavier in browse and weeds. Forage surveys and experimental plantings are being made. Better elk distribution is gained by distribution of salt by airplane. Some problems have been solved by acquisition of winter range, by special hunting seasons, by fencing haystacks, and by use of outrigger-type electric fence. Herding proved very temporary. Emergency feeding is desirable at times, and is best done on alternate days. 4 lbs. of hay per elk per day is enough where there is moderate browse. Competition with white-tailed deer and mountain sheep is mentioned.

Lemon, Carroll. UNPREDICTABLE PIGS. Arizona Wildlife-Sportsman 23(2): 6-9, 52-55, illus. Feb. 1952.

Popular article on habits, hunting, weights, and cooking of javelina. Includes map by Ted Knipe showing range in state and areas of abundance.

McKean, Wm. ANTELOPE SEASON RESEARCH. North Dakota Outdoors 14(7): 17. Jan. 1952.

Data from 1951 bag checks, North Dakota: year classes, sex ratio, weights, horn size.

MAMMALS--DEER

Allen, John M. A REPORT ON THE 1951 DEER HUNT. Outdoor Indiana 19(4): 4-5, 7, illus. April 1952.

Indiana's first deer season in 58 years was considered a success. Statistics on the hunt are given. Many unusually husky deer were taken. Signs of stunting and overpopulation were found in one area. Hunter-farmer relationships were good. Over 10,000 of the 12,182 licensees returned report cards; those who did not will get no license next year. Hunter success was 17 per cent.

MAMMALS--DEER—Continued

Allen, Robert P. THE KEY DEER: A CHALLENGE FROM THE PAST. Audubon Magazine 54(2): 76-81, illus. March-April 1952.
A semitechnical article that tells what is being done to protect the key deer and summarizes what is known of its biology. Protection is currently good and the herd of about 57 is thought to be increasing. A map shows the range on various keys and indicates degree of use of different areas. Many of the water holes are seasonal, but several are permanent. Mating is in December and January, birth in June or July. A wide variety of common foods is used; many of them are fruits, others foliage. Protection from hunting, fire, and traffic are the main needs.

Anonymous. ADIRONDACK DEER PROBLEM. The New York State Conservationist 6(4): 28-29, illus. Feb.-March 1952.
Three mild winters have allowed deer in the central Adirondacks to multiply to such an extent that the next hard winter -- and there is 1 about every 4 years -- will cause much winter kill and range damage. An antlerless deer season is proposed for the area in the fall of 1952. Even this is not expected to relieve the situation completely.

Anonymous. CAMP AND WARDENS REPORTS INDICATE 3,000 DEER KILLED IN MISSISSIPPI. Mississippi Game and Fish 15(7): 8-9. Jan. 1952.
Report on 1951 season. Figures given for counties. Herd still increasing; estimated to be about 50,000.

Anonymous. DEER WERE SCATTERED THROUGH THE WINTER. Wisconsin Conservation Bulletin 17(4): 20-21, illus. April 1952.
Wisconsin had a mild winter and deer consequently spread out instead of yarding as much as usual. The yards were given a chance to recover, deer were strong and wary, and little artificial feeding was done.

Anonymous. REPORTED DEER TAKE FOR NEW YORK STATE 1949-51. New York Conservation Department, Fish & Game News, Winter 1952: 4-5.
Totals for state and counties for 3 years.

Anonymous. THE 1951 DEER TAKE. The New York State Conservationist 6(4): 33. Feb.-March 1952.
New York. Includes statistics for counties.

Bryan, Homer F. and Walter I. Long. RESULTS OF THE 1950 SPECIAL DEER HUNT ON MINERAL KING NATIONAL GAME REFUGE. California Fish and Game 38(2): 235-238. April 1952.
This refuge of 15,770 acres is in Sequoia National Forest, California, and is bounded on 3 sides by Sequoia National Park. The deer situation is unusual in that the summer rather than the winter range is overused, and in that this damage is caused only by deer. A special season was held and 870 hunters took 677 deer. Data are given on sex and age ratios, and on antler point classes. Crippling loss was low, about 4% of the kill, probably because of careful patrolling during the hunt.

Dasmann, Raymond F. METHODS FOR ESTIMATING DEER POPULATIONS FROM KILL DATA. California Fish and Game 38(2): 225-233, illus. April 1952.
Deer populations can be estimated accurately from kill data in combination with sex and age ratios. "Where precise knowledge of population size is necessary, the time and labor required to obtain field data of sufficient accuracy for use in calculations from kill plus sex and age ratios should be weighed against that required to census a population by more direct means. For a less exact measurement of population, approximations may be made from examination of kill data alone, or by comparison with known kill ratios from censused areas. A table giving approximate ratios of kill to population for herds in which bucks only are hunted is presented. This table may be used by the field man who is in a position to determine roughly the average sex and age composition and deer kill from the herd with which he is working."

MAMMALS--DEER--Continued

DeBoer, Stanley G. FEED 'EM - WITH AN AXE. Wisconsin Conservation Bulletin 17(3): 3-11, illus. March 1952.
16 photographs and accompanying text tell how to make an area produce deer food for 10 years after 1 operation. When worthless trees are cut their tops provide browse and their stumps send up many sprouts. Brush and other deer foods spring up in the clearing. Openings can be bulldozed in low grade aspen stands. Jack pine is well managed both for forestry and deer by clear-cutting patches. Fire can be used in areas of little commercial value to create dense stands of deer foods. All of these measures are of slight value if the herd is not kept in balance with the food supply. Also, there are relatively few lands on which the state can undertake such operations.

DeGarmo, W. R. FROM BUCKS TO DEER IN WEST VIRGINIA. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-20 p., illus.
A technical report on the states' first any-deer season, with data on numbers bagged, sex and age ratios, breeding success in regions of the state, and calculated rate of increase. The take was relatively huge (21,971), but public protest was less than expected and there are still lots of deer in the woods.

DeGarmo, W. R. THE 1951 DEER SEASON. West Virginia Conservation 15(11): 4-7, illus. Feb. 1952.
Report on West Virginia's first "hunters' choice" season. The kill was 21,971, far above that of recent years. About 54% of the deer killed were females. 34.4% of the total were fawns. "...34 to 46 per cent of our adult does were being killed annually in one way or another, exclusive of the 1951 legal kill." Hunting females avoids some of this waste. Only locally was hunting pressure too heavy. More access roads are needed to distribute the pressure.

Engle, J. W., and P. J. Hanlon. KNOWLEDGE GAINED AT THE BIG LEVELS MANAGED HUNT. Virginia Wildlife 8(5): 10-13, illus. May 1952.
This Virginia refuge was stocked with deer in the 1930's and not hunted until 1951, when 650 permits were issued. Antlerless deer were hunted the first 3 days of a 5 day season, bucks the last 2. The 532 hunters who appeared bagged 120 deer, 71% of them does. Deer were light, the average for all ages and both sexes being about 81 pounds. Antler development was not good. Largest kill was in the 6-month age class. More deer in the 3½-year age class were killed than in the 1½ or 2½-year classes. Very few old deer were taken. Apparently large unknown losses affect the herd. Heavier harvesting and hunter's choice seasons are indicated. A graph shows kill by sex and age class.

Kerns, Chester M. MARYLAND'S 1951 DEER KILL. Maryland Conservationist 29(1): 5-6. Spring 1952.
Legal take (by counties) 1948-1951; average weight per county, 1951. Total take was a record 1176. Four Eastern Shore counties were open for first time in recent years. No human fatalities occurred.

Lassen, Robert W., Carol M. Ferrel, and Howard Leach. FOOD HABITS, PRODUCTIVITY AND CONDITION OF THE DOYLE MULE DEER HERD. California Fish and Game 38(2): 211-224, illus. April 1952.
The range of this herd (chiefly Lassen and Plumas Counties, California, and Washoe County, Nevada) has been badly overgrazed by livestock and deer. Livestock pressure has been lightened, but the range is still poor. Deer do well in the summer but many starve and suffer a variety of accidents in the winter. Reproduction is low and survival of fawns and yearlings is poor. During the winter of 1949-50, 82% of the fawns died. Data are presented on stomach contents (by season), range condition, herd composition, physical condition of deer, and reproduction.

MAMMALS--DEER--Continued

Lindzey, James S. THE WHITE-TAILED DEER IN OKLAHOMA. Oklahoma Game and Fish Department, Oklahoma City. P.-R. Project 37-R: xiv + 105, illus. No date. Issued 1952.

Oklahoma is one of the states in which the deer problem is to get more deer. Deer hunting is permitted only in Southeastern Oklahoma and the kill is less than 1000 per year. Poaching isthe most important mortality factor, and here better public relations are much needed. Overuse of the range by free-ranging livestock, including hogs, is a problem, as are certain types of forestry, and the lack of particular minerals in the soil. In this substantial bulletin the author describes the principle deer ranges of the state, with particular reference to the McCurtain County State Game Preserve, and analyzes their favorable and unfavorable conditions. He discusses the physical characteristics of the deer and many aspects of their biology in the state. Among many other management recommendations he outlines a land use plan that will permit better handling of both timber and wildlife resources in most areas, and the preservation of virgin stands in the McCurtain County Preserve.

Powell, Stephen E. DEER TRAPPING ON SWAN ISLAND, RICHMOND, MAINE. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-4 p.

Gives data on movements of transplanted deer, and on costs of trapping. Trapping is not an effective form of control, even on an island.

Robb, Dunbar. ANY DEER AND LOTS OF SNOW. Missouri Conservationist 13(1): 2-3, 13, illus. Jan. 1952.

Report on 1951 Missouri deer season, with data on take per county and square miles per deer bagged in each county. The 3-day season was a month earlier than usual, and for the first time any deer could be shot in 15 counties. Bucks could be taken in 17 others. A record total of 5000 was bagged. Snow apparently aided hunters. The herd is not thought to have been cut too hard, for the entire take was only 20% of estimated annual reproduction. 55% of the deer taken were does, 39% young of the year. There was no upswing of accidents; only 1 person was shot, and this shooting occurred in camp. Deer were in good condition, with the heaviest and most fertile animals coming from the best range. 28% of yearling does had borne young. Only 3.3% (bucks 2%, does 4.5%) of the deer were in or over the 5½-year class. "This only serves to substantiate our contention that you cannot stock-pile deer. Either you are going to harvest a crop when it becomes available, or you are going to find it taken by illegal or natural means."

St. Amant, Lyle S. and Carroll J. Perkins. YES! WE'RE TRAPPING DEER IN LOUISIANA. Louisiana Conservationist 4(6): 11-15, illus. Feb. 1952.

Tells why and how the trapping is done, gives a table showing source, numbers, and release point of all deer transplanted, and presents a map indicating potential range and deer density in occupied range of state.

Stenlund, M. H., M. A. Morse, D. W. Burcalow, J. L. Zorichak, and B. A. Nelson. WHITE-TAILED DEER BAG CHECKS, GOGEBIC MANAGEMENT UNIT, SUPERIOR NATIONAL FOREST. Journal of Wildlife Management 16(1): 58-63. Jan. 1952.

Value of checking stations, hunting pressure, hunting statistics, sex ratios, take per part of season, distance of kills from roads (90% within 3/4-mile of road or trail), incidence of the fluke Fascioloides. The surplus is not being removed and the range is deteriorating, partly because of natural reversion toward conifer climax.

Sweet, Jasper C. and Charles W. Wright. SOME ASPECTS OF THE DEER HERD IN NEW JERSEY ON A REGIONAL BASIS. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-17 p., illus.

Describes natural and land use areas of state and their relation to deer condition as indicated by age classes, antler beam diameter, hind leg length, and reproduction. The northern part of the state is better deer range and has more fertile soil. There deer grow larger and breed better. In the southern part, more deer live longer, perhaps because vegetation is too dense for good hunter visibility, and because some legal age deer fail to form legal sized antlers.

MAMMALS--DEER--Continued

Swift, Ernest. DEER HERD CONTROL METHODS AND THEIR RESULTS. Wisconsin Conservation Bulletin 17(1): 3-9. Jan. 1952.

The history of herd control in Wisconsin, and the vast selling job it entailed, are interestingly reviewed. In 1950 a 7-day any-deer season was in effect and 167,911 deer were taken. A similar season was approved for 1951. Overpopulation problems are now local, chiefly in the northern part of the state. "If the herd has been reduced in a county or counties to a reasonable level, we will confine our hunting to the shotgun [with slug] with the idea of forcing the rifle hunters into territory where herd reduction is more needed.....In our management activities, we also use special closed areas to increase hunting pressure in certain places and to protect resort areas, logging operations, and other problem situations." The author also discusses the impracticability of operating a truly regulated hunt on a statewide basis, and concludes that no state is ready to attempt it.

Winter, Kenneth B. and Ralph F. Honess. BEARDED GRAINS CAUSE DEATH OF DEER. Journal of Wildlife Management 16(1): 113-114, illus. Jan. 1952.

Feeding on hay of bearded wheat killed numerous deer through gastritis and enteritis. Beardless grains should be grown if they are to be used by wildlife or livestock.

MAMMALS--ARMADILLO

Fitch, Henry S., Phil Goodrum, and Coleman Newman. THE ARMADILLO IN THE SOUTHEASTERN UNITED STATES. Journal of Mammalogy 33(1): 21-37, illus. Feb. 1952.

Range extensions and present range, cause of spread, effect of climatic factors, numbers and movements, habitat and habits, foods, details of economic effects. The armadillo has spread into New Mexico, Oklahoma, Arkansas, and Mississippi. "Having reached Florida by human agency it has spread over a large part of the state, and there are records of its occurrence in Kansas, Missouri, Alabama, and Georgia." Hard winters will kill many. Home ranges have radii of only a few hundred feet. Fruits, seeds and fungi are about 10% of the diet. At present the armadillo cannot be characterized as beneficial or harmful. [If popularized as a food and game animal, might it not be definitely beneficial?]

MAMMALS--MARINE

Laws, R. M. SEAL-MARKING METHODS. Polar Record 6(43): 359-361. Jan. 1952.

A review that briefly discusses the advantages and disadvantages of different methods. Branding can be done with hot irons or caustic soda. Numbered, noncorrosible tags can be attached to various parts of the anatomy, depending on the species. For short-term studies, paint of different colors can be applied as numbers or code marks. Sprayed paint does not last well; the author rubs paint into the fur by means of a long handled brush.

Mackintosh, N. A. THE ANTARCTIC WHALING SEASONS OF 1948-49, 1949-50, AND 1950-51. Polar Record 6(43): 403-404. Jan. 1952.

Records catch of 5 species 1945-51, annual totals, number of factory ships, and their nationalities. The whaling agreement seems to be working satisfactorily and the prescribed totals are not being exceeded. All species of whales seem to be holding up well. One factory ship is operating under the flag of Panama, which is not a party to the agreement.

BIRDS--GENERAL

Miller, A. W., and Russell Henry. MECHANICAL AIDS FOR BIRD BANDING. California Fish and Game 38(1): 43-51, illus. Jan. 1952.

Plans for and descriptions of several plier adaptations for expanding and closing bands of different sizes. Some of the pliers are connected to cables holding the supply of bands. Increased speed and efficiency in banding are claimed.

BIRDS--MORPHOLOGY, PHYSIOLOGY, BEHAVIOR, MIGRATION

Frelinghuysen, Thos. T. K. BIRDS OF MIDWAY. Avicultural Magazine 58(2): 73-76. March-April 1952.
Status and behavior of some birds of Midway under the stress of intensive military activity in 1943. Lack of adaptability of the sea birds was notable.

Karplus, Martin. BIRD ACTIVITY IN THE CONTINUOUS DAYLIGHT OF ARCTIC SUMMER. Ecology 33(1): 129-134, illus. Jan. 1952.
"The activity cycles of three nesting species were studied briefly in the continuous daylight of arctic summer. The daily periods of rest were more closely correlated with the period of minimum light intensity than with temperature." It is suggested that, "...the decrease in nestling period and the associated rise in the growth rate resulted from the greater number of hours per day during which food was supplied by parents. ...a factor from which migrations derive their survival value is the more rapid growth of young possible in the north."

Lincoln, Frederick C. MIGRATION OF BIRDS. Doubleday & Co., Garden City, N. Y. 1-102 p., illus. Feb. 1952. $1.00.
This attractive, hard-backed, pocket-size book is a photographic reproduction of the author's paper of the same title that appeared as Circular 16 of the U. S. Fish and Wildlife Service, 1950. (See Wildlife Review 62: 30.)

Williams, Laidlaw. BREEDING BEHAVIOR OF THE BREWER BLACKBIRD. Condor 54(1): 3-47, illus. Jan.-Feb. 1952.
A detailed study made over 6 breeding seasons in Monterey Co., California.

BIRDS--MANUALS, FAUNAS, COMMUNITIES

Cade, Tom. NOTES ON THE BIRDS OF SLEDGE ISLAND, BERING SEA, ALASKA. Condor 54(1): 51-54. Jan.-Feb. 1952.
Annotated list. Eskimos and red foxes prey heavily on eggs and young of the sea birds, but it does not seem that the avian population is being significantly reduced.

Murray, Joseph James. A CHECK-LIST OF THE BIRDS OF VIRGINIA. Virginia Society of Ornithology. 1-113 p. 1952. $1.00.
The bulk of this publication is an annotated list giving status, distribution, and breeding or occurrence records for each species and subspecies. There are also sections on early accounts of Virginia birds, Virginia ornithology 1800 to 1930, the Virginia Society of Ornithology, physical features of Virginia, faunal zones of the state, and a selected bibliography of 6 pages.

Stewart, R. E., J. B. Cope, C. S. Robbins, and J. W. Brainerd. SEASONAL DISTRIBUTION OF BIRD POPULATIONS AT THE PATUXENT RESEARCH REFUGE. American Midland Naturalist 47(2): 257-363, illus. March 1952.
The first of a series of papers resulting from an extensive and intensive study of the birds of the Patuxent Refuge, Maryland. The work covered several years but was most concentrated 1943-1945. The present paper discusses the area, methods, accuracy of censuses, and seasonal population trends in introductory sections. Monthly summaries give climatic data and much phenological information and discuss their relation with bird populations and migration. Seasonal changes in occurrence of birds are compared with those of other areas. An annotated list of all birds of the refuge gives relative abundance, seasonal status, migration dates, seasonal population indexes, data on flocking, and information on actual numbers of some species at different seasons. The paper is illustrated with many graphs.

BIRDS--WATERFOWL

Anonymous. DUCK STAMP SALES AMOUNT TO $27 MILLION IN 17 YEARS. U. S. Fish and Wildlife Service, press release for March 17, 1952.
Through June 30, 1951, receipts amount to $26,909,141. $21,626,072 has been expended as follows: $358,809, cost of stamps; $2,038,551, law enforcement; $4,006,420, land acquisition; $13,598,488, development, management, and administration of refuges; $1,623,803, waterfowl investigations. The Service now has 196 refuges established primarily for waterfowl. They total 3,122,231 acres.

Chamberlain, E. B. WATERFOWL IN DELAWARE. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-21 p., illus.
Technique of aerial surveys; numbers of waterfowl in state; sex and age ratios determined by bag checks; crippling loss (about 12%); species in state and percentages bagged; hunter success data; take by parts of open season; waterfowl populations in zones of different salinity (highest where salinity low). The state is undertaking habitat improvement on public and private lands by means of water control structures and provision of seed stock of food plants. The goal is 10,000 acres of managed marsh. Muskrats as well as waterfowl should gain. The paper contains many tables and graphs.

Cottam, Clarence. PRESENT STATUS OF MIGRATORY GAME BIRDS. Atlantic Naturalist 7(3): 118-123, illus. Jan.-Feb. 1952.
A brief popular review of factors affecting numbers of these birds, and how information about them is gathered.

Damaskee, Norbert. GREENWOOD REFUGE: HOME OF HONKERS. Wisconsin Conservation Bulletin 17(4): 3-6, illus. April 1952.
Goose management on a 1,995-acre Wisconsin state refuge. 650 acres are profitably farmed, with plenty of standing corn and winter rye left for geese. Residues of other crops are also eaten. 2,500 to 6,000 geese use the area in the fall. 150 to 950 winter there, the larger numbers in the milder winters. General use of mechanical corn pickers has benefited geese. Hunting is done right to the refuge boundary, and the birds soon learn to stay fairly close to the refuge during the open season.

Givens, Lawrence S. and Thomas Z. Atkeson. USE OF ITALIAN RYE GRASS AS A MEANS OF ATTRACTING WATERFOWL. Journal of Wildlife Management 16(1): 107-108. Jan. 1952.
This grass is cheaply and easily handled, is attractive to waterfowl, and does well on mud flats that are periodically flooded and silted.

Grieb, Jack R., and Ronald A. Ryder. WATERFOWL RECORDS FOR NORTH-CENTRAL COLORADO. Condor 54(1): 65-67. Jan.-Feb. 1952.
Records for black duck, wood duck, hooded merganser, and horned grebe. Their status in state is discussed.

Hamnett, Bill. BY THEIR MARKS YE SHALL KNOW THEM. Wildlife in North Carolina 16(1): 14-15, illus. Jan. 1952.
A simplified key to North Carolina waterfowl, with sketches of certain characters. Unfortunately, measurements are not explained, and the few deviations from dichotomy are apt to prove confusing even to those familiar with keys.

Hanson, Harold C. and Richard E. Griffith. NOTES ON THE SOUTH ATLANTIC CANADA GOOSE POPULATION. Bird-Banding 23(1): 1-22, illus. Jan. 1952.
An important technical paper that discusses the breeding area, wintering area, and migration routes of this population. The annual take from the population during the 1940's was about 16,000. Roughly a third of the kill is made by Indians and Eskimos on the breeding grounds.

BIRDS--WATERFOWL—Continued

Hickey, Joseph J. MONTHLY DISTRIBUTIONS OF MALLARD HUNTING MORTALITY. Journal of Wildlife Management 16(1): 32-38, illus. Jan. 1952.

From author's summary: "For 2883 western adult birds shot mostly in the 1930s, there was a unimodal distribution of the records for the five months of the hunting season, the peak (44%) occurring in November. For 3033 Mississippi Valley adults, shot mostly in the 1940s, the peak of the kill (36%) also occurred in this month, but October (31%) involved a relatively important share of the records. Overall monthly frequencies of hunting mortality among 610 young birds were heavily skewed toward the earlier part of the hunting season, 45% of the kill occurring in September and October. The extent of this skewness displayed a geographical gradient according to the latitudes in which the birds were banded. Marked differences in the chronological pattern of the kill occurred from one year to another. These variations would appear to be objective criteria by which we can determine how weather affected the kill under a given set of hunting regulations."

Hjelle, Brandt V. SPECIES COMPOSITION OF DUCKS TAKEN BY NORTH DAKOTA HUNTERS - 1951 HUNTING SEASON. North Dakota Outdoors 14(7): 17. Jan. 1952.

5,460 ducks represented 18 species. These are named and their percentages of the total are stated. Almost half of the ducks were mallards, the preferred species. Pintail representation dropped. Of all species, 68.1% were young of year, and 53.1% were males.

Jones, Robert L. and Joseph A. Hagar. NEW ENGLAND WATERFOWL PROBLEMS. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-5 p.

The black duck is the commonest and most important waterfowl species in the Northeast. Much evidence indicates that black ducks in New England are produced in the Northeast and that the bulk of them winter north of Long Island, largely in tidal areas. The population is stable, successful, and not overhunted. The authors feel that administration and regulations should recognize this situation and treat the New England population separately rather than as part of the Atlantic Flyway.

Miller, William R. ASPECTS OF WOOD DUCK NESTING BOX MANAGEMENT. Proceedings of the 8th Annual Northeast Wildlife Conference, Jackson's Mill, West Virginia, April 1-4, 1952. 1-6 p.

Discusses effect of water levels on production; raccoon predation and difficulty of preventing it; problem of starlings and swallows (slight); higher use of new boxes than weathered ones; marking of young and adults (causes little desertion of nests); and turtle predation. The paper contains much quantitative data on production and predation over 3 years, and gives suggestions on the management and study of a wood duck project.

Murdy, Ray. HUNTING PRESSURE DETERMINED BY X-RAY. South Dakota Conservation Digest 19(2): 2-5, illus. Feb. 1952.

Thousands of mallards that winter in the Black Hills do considerable damage to crops and trout streams. Banding studies and fluoroscopy of 1,057 birds revealed that the mallards come from Alberta and have been subjected to normal hunting pressure en route. Roughly a quarter of the birds carried shot. A table shows that this is similar to the frequency of shot in populations studied elsewhere.

Rigdon, R. H. PATHOLOGIC LESIONS IN THE NERVOUS SYSTEM OF THE DUCK FED A RATION DEFICIENT IN VITAMIN A. A. M. A. Archives of Pathology 53(3): 239-249, illus. March 1952.

Schreiner, Keith Marshall. PRODUCTIVITY OF THE WOOD DUCK, AIX SPONSA (L.), AIDED BY ARTIFICIAL NESTING BOXES. Masters thesis, Iowa State College, 1951.

BIRDS--WATERFOWL--Continued

Smith, Donald J. THE HAWAIIAN GOOSE (NENE) RESTORATION PROGRAM. Journal of Wildlife Management 16(1): 1-9, illus. Jan. 1952.
Reviews history of nene in the wild and in captivity, and discusses propagation and habits of captives. The bird is not difficult to rear and present efforts are largely toward propagation. Ecological study is under way on a small scale but should be intensified. The nene is hopelessly vulnerable to predation by dogs and pigs during a month of flightlessness, and there are no lakes or marshes for escape. At present there are about 30 nene in the wild and 24 in captivity.

Southwick, Charles H. THE DUCK CALLED "POACHER." Audubon Magazine 54(1): 44-47, illus. Jan.-Feb. 1952.
A popular article on the biology and life history of the baldpate.

Titus, Harold. KIDDED BY EXPERTS. Field & Stream 56(9): 28-29, 100-101, illus. Jan. 1952.
The author demonstrates that estimates made up to a few years ago of the numbers of North American waterfowl were far too high, even if one allows for heavy use of all breeding grounds then existing. He considers present survey efforts to be soundly based, but points out that waterfowl breeding areas are continuing to be restricted and that hunters must be content with small bag limits.

Weibe, A. H. IMPROVING CONDITIONS FOR MIGRATORY WATERFOWL ON TVA IMPOUNDMENTS. Virginia Wildlife 8(1): 18-19, 22-23, illus. Jan. 1952.
Reprint of article of same title from J. Wildl. Mgt. 10(1), 1946.

BIRDS--UPLAND GAME--GENERAL

Bump, Gardiner. HOW SHALL FOREIGN SPECIES BE INTRODUCED? Atlantic Naturalist 7(3): 112-117, illus. Jan.-Feb. 1952.
Discussion of considerations involved in game-bird introductions, and notes on plans for the program.

Latham, Roger M. COCK OR HEN? Pennsylvania Game News 22(12): 9-12, illus. March 1952.
Popular article that discusses external means of distinguishing sexes of ruffed grouse, sharp-tail, bobwhite, pheasant, turkey, Hungarian partridge, woodcock, and mourning dove. Weight differences are given for some.

Swenson, Lowell E. GUIDE TO THE UPLAND GAME BIRDS OF COLORADO. University of Colorado Museum, Leaflet no. 9: 1-15, illus. Feb. 1952. 20¢.
Simple key for specimens in hand, sketches, and brief notes on appearance, status, distribution in state, and habits. Treats 15 galliforms and 3 columbiforms.

BIRDS--QUAIL

Baker, Rollin H., and Thane S. Robinson. BOBWHITE WINGS: THE STORY THEY TELL. Kansas Fish and Game 9(4): 6-7, illus. April 1952.
Report of study of 1,662 bobwhite wings from Kansas, 1951. The age ratio was about 21 old birds to 79 young birds. Of the young birds, 54.3% were at least 22 weeks old and 45.7% were from 8 to 22 weeks old at the time of the hunting season. Effect on breeding of exceptionally heavy late spring and early summer rains is discussed. The rains apparently lengthened the nesting season, resulting in many late broods, and caused the death of many young quail. Little harm seems to have been done to eggs being incubated.

BIRDS--QUAIL--Continued

Baldini, James T., Roy E. Roberts, and Charles M. Kirkpatrick. STUDIES OF THE REPRODUCTIVE CYCLE OF THE BOBWHITE QUAIL. Journal of Wildlife Management 16(1): 91-93. Jan. 1952.
Conclusions: "1. The bobwhite quail can be stimulated (by continuous light) probably through the pituitary-gonad axis to reproduce during other than the normal season. 2. Under these conditions the bobwhite quail: a. may attain sexual maturity as early as 139 days of age; b. may be polygamous; c. may be made available at any age for research purposes at all times of the year."

Brenner, L. G. NATIVE FOOD AND COVER PLANTS FOR QUAIL. Louisiana Conservationist 4(7): 17-18, 26, illus. March 1952.
Missouri. Tells of preference tests and recommends various native plants. These are described and their culture outlined.

Evans, Everett F. INTRODUCING THE BOBWHITE QUAIL. Texas Game and Fish 10(3): 20-22, illus. Feb. 1952.
A popular article treating the general and Texan range, and the climatic factors that limit range or productivity. Includes full page color plate and map of distribution in state.

Kirkpatrick, Charles M., Donald E. Stullken, and James T. Baldini. EFFECT OF SIMULATED GUNSHOT INJURIES ON REPRODUCTION OF GAME FARM BOBWHITES. Journal of Wildlife Management 16(1): 54-58. Jan. 1952.
Non-lethal injuries did not result in impaired reproduction.

Korschgen, Leroy J. ANALYSIS OF THE FOOD HABITS OF THE BOBWHITE QUAIL IN MISSOURI. Missouri Conservation Commission. 1-59 p., illus. March 1952.
Contents of 5,472 crops and 1,358 droppings were analyzed. Emphasis is on September to April foods. Data are presented for both the whole state and regions of the state. The principal foods were Korean lespedeza, common ragweed and corn.

Latham, Roger M., and C. H. Studholme. THE BOBWHITE QUAIL IN PENNSYLVANIA. Pennsylvania Game News, Special Issue No. 4: 1-95, illus. March 1952.
"This is a report to the sportsmen of Pennsylvania on the findings from three research studies concerning the welfare and management of ... the bobwhite quail." It covers the early history of bobwhites in Pennsylvania, life history, research findings, and management. A bibliography of 91 titles is appended. The authors believe pollution of native stock by Mexican bobwhites, and continued game-farm releases have caused loss of vigor. Deterioration of soil fertility and loss of cover have contributed to decrease of population. "Positive" management practices recommended are: increasing soil fertility, increasing amount of winter food and cover, predatory animal control, emergency winter feeding, and education of hunters and landowners.--F. H. Dale.

Lawrence, James E. BOBWHITE. The New York State Conservationist 6(4): 24 p., illus. Feb.-March 1952.
History, present status, and management needs in the state. The state is climatically peripheral for quail, but numbers are on the upswing, partly because of a series of mild winters.

Ligon, J. Stokley. THE VANISHING MASKED BOBWHITE. Condor 54(1): 48-50, illus. Jan.-Feb. 1952.
Colinus virginianus ridgwayi requires a deep-grass and weed habitat, and as this habitat was destroyed by grazing the bird vanished from the U. S. and became almost extinct in Mexico. Areas in Sonora that supported deep grass only a few years ago are now desolate wastes simply because water was developed [and the range presumably overstocked]. The writer and his associates were able to collect over 100 bobwhites in Sonora in 1937. These were released in Arizona and New Mexico, but the plant failed. In 1949, attempts to locate any of these quail in Sonora were fruitless, but in 1951, after an enormous amount of searching, 25 birds were captured and brought back for propagation and eventual release in prepared areas.

BIRDS--QUAIL--Continued

Mangold, Robert Edward. FALL AND WINTER LOSSES OF THE EASTERN BOB-WHITE, COLINUS V. VIRGINIANUS L., ON THE DECATUR COUNTY QUAIL RESEARCH AREA, 1949-1950. Masters thesis, Iowa State College, 1951.

Petrides, George A. and Ralph B. Nestler. FURTHER NOTES ON AGE DETERMINATION IN JUVENILE BOBWHITE QUAILS. Journal of Wildlife Management 16(1): 109-110. Jan. 1952.
By means of wing feather development at various stages of post-juvenile molt. The method is of value for other gallinaceous species.

Stanford, Jack A. QUAIL PRODUCTION: 1951. Missouri Conservationist 13(2): 6, 15, illus. Feb. 1952.
The Missouri quail crop was only 2% under normal, but early summer rains caused many late broods. The many immature birds caused quail behavior hunters did not expect and a poor hunting season resulted.

Thompson, Donald R. THE BOBWHITE AS A WILDLIFE RESOURCE IN WISCONSIN. Wisconsin Conservation Bulletin 17(4): 7-9. April 1952.
Hunter harvest of bobwhite in the state is probably about 5% of the population. A heavier take is desirable and more counties should be opened. "The effect of taking a reasonable number of birds by hunting merely lightens the loss that would be sustained by the birds from other causes..." Overshooting certainly would be possible, but should not occur with proper regulations. Wooded areas also afford much protection from overshooting.

Vessels, Jay. BENEFITS OF HUNTER COOPERATION. Texas Game and Fish 10(2): 22-25, illus. Jan. 1952.
Presents in tables much data determined from bobwhite wings sent in by hunters during the 1950 hunting season, Texas. These data are broken down by regions of the state and pertain to age and sex ratios and hatching dates. There is also a table on hunter success.

Webb, Cecil M. CONSERVATION AND GAME FEEDING. Florida Wildlife 5(10): 16-17, illus. March 1952.
"The Webb plan of installing feeding stations throughout a given territory and keeping them supplied with food suitable for quail, such as cracked corn, scratch feed, or any type of grain feed, is no longer an experiment, but has proven that quail can be had in abundance where a systematic feeding program has been carried on. Sometimes as many as six coveys will feed from a single feeder." The feeder is described and illustrated. Kublai Khan's wildlife management program is described.

BIRDS--PHEASANTS

Anonymous. SEVERE JANUARY BLIZZARD TALLIES HEAVY PHEASANT LOSS. South Dakota Conservation Digest 19(2): 6. Feb. 1952.
South Dakota. Losses varied locally from slight to over 50 percent of the population. Starvation is not considered a factor, nor is unavailability of grit. Pheasants and quail can go 2½ months without grit ingestion without serious effects.

Jungherr, Erwin. NEWCASTLE AND OTHER PHEASANT DISEASES. Modern Game Breeding and Hunting Club News 22(2): 9-11. Feb. 1952.
A poultry pathologist briefly discusses 14 pheasant diseases, giving cause, symptoms, and treatment or prevention of each.

Long, William J. LEARNING FROM THE PHEASANTS. Sports Afield 127(1): 43, 60-62, illus. Jan. 1952.
Behavior of pheasants in escaping man and other predators, and ways of capitalizing on this behavior in hunting.

BIRDS--PHEASANTS--Continued

Miller, Wilford L. PHEASANT OLD-YOUNG RATIO STUDIES. North Dakota Outdoors 14(7): 17. Jan. 1952.
The ratio of adult to young in North Dakota, 1951, as determined by Nebraska Age Gauge, was 1:3.09, which is considered satisfactory. There was some variation between regions of the state. The 1951 ratio is compared with those for each year since 1945.

Robbins, Otis, Jr. THE PRODUCTIVITY OF THE RINGNECKED PHEASANT, PHASIANUS COLCHICUS TORQUATUS (GMELIN), IN WASHINGTON COUNTY, IOWA, 1950. Masters thesis, Iowa State College, 1951.

Swanson, Carl V. ASPARAGUS AS EMERGENCY PHEASANT FOOD. Journal of Wildlife Management 16(1): 50-53. Jan. 1952.
Fruits of this cultivated and escaped perennial seem to be a desirable and important winter food. The plant also provides good cover, and once established competes well with native vegetation. As a crop, it provides the farmer with income and then produces food and cover for pheasants.

Throckmorton, Mike. HOW MANY PHEASANTS STARVE? Idaho Wildlife Review 4(3): 10-11, illus. Jan.-Feb. 1952.
Twenty one Idaho game farm birds were kept outdoors in winter in small pens without shelter for 1 month. They were fed either locust, hackberry, sumac, Russian olive, burdock, or teasel seeds. 5 birds died, partly from flying against the wire; the rest lost weight but remained vigorous. 1 cock and 1 hen survived the full 28 days without food. The author believes starvation is not a limiting factor in the wild. He attributes natural mortality chiefly to freezing and suffocation during blizzards, accidents of various kinds, and predation. He considers predation generally beneficial because it contributes to alertness, wariness, and strength.

Weston, Henry Griggs, Jr. WINTER BEHAVIOR AND SPRING DISPERSAL OF THE RING-NECKED PHEASANT (PHASIANUS COLCHICUS TORQUATUS GMELIN) IN EMMET COUNTY, IOWA. PhD thesis 1104, Iowa State College, 1950. Long abstract in Iowa State College Journal of Science 26(2): 317-319. Jan. 1952.
Population changes, effect of snow on concentrations, use of cover types, effect of weather on activity, weights, population turnover, behavior in spring, travels and dispersal, density of nesting populations.

BIRDS--GROUSE, PARTRIDGE, ETC.

Anonymous. [GROUSE AND HUNGARIAN PARTRIDGE AGE AND SEX RATIOS, NORTH DAKOTA, 1951.] North Dakota Outdoors 14(9): 21. March 1952.
Data from birds bagged by hunters: 309 sharptails, 150 ruffed grouse, 82 partridges. Sex and age ratios are given, and productivity in 1950 and 1951 is compared.

Mohler, Levi L. FALL AND WINTER HABITS OF PRAIRIE CHICKENS IN SOUTHWEST NEBRASKA. Journal of Wildlife Management 16(1): 9-23, illus. Jan. 1952.
A study of this bird in agricultural areas in fall and winter. Describes study areas and methods, seasonal changes in flocking habits, use of different kinds of crop fields, feeding behavior, loafing and roosting habitat, activity at booming ground, home range, flight distances, use of trees and water. The preferred roosting cover is dense grass. Heavy grazing creates very poor habitat. The birds were little disturbed by the presence of other animals, wild or domestic, other than hawks.

Ordal, Norman J. THE HUNGARIAN PARTRIDGE. The Conservation Volunteer 15(85): 26-32, illus. Jan.-Feb. 1952.
A semitechnical account of the bird, its history in Minnesota, its biology, and its management. Management measures favoring this species also benefit pheasants, cottontails, and some ducks. The greatest limiting factor is mowing and other disturbance of the grasslands necessary for nesting. The species does not renest freely. There is a table of the estimated kill in the state, 1939-1950.

BIRDS--TURKEY

Uhlig, Hans G. THE YEAR 1951 SHOWS RECORD WILD TURKEY KILL. West Virginia Conservation 15(11): 12-13, illus. Feb. 1952.
The kill in West Virginia was 879. It has been increasing since 1948, and future prospects are good. Turkeys were numerous after the season. Because of a poor mast crop they will be fed during emergency periods. A graph is included of reported turkey kill in state, 1940-51.

Uhlig, Hans G. and R. Wayne Bailey. FACTORS INFLUENCING THE DISTRIBUTION AND ABUNDANCE OF THE WILD TURKEY IN WEST VIRGINIA. Journal of Wildlife Management 16(1): 24-32. Jan. 1952.
The 1949-50 survey revealed 14% increase in 5 years. Fall populations on the better range do not exceed 1 bird per 125 acres. No correlation was found between populations and soil types of areas now occupied. There is some correlation with forest type, but primarily turkeys are commonest in the more inaccessible areas. Turkeys are holding their own in most places, and where they are decreasing hunting is not the main factor. There seems to be a 3 year cycle in size of take (tabulated, 1940-50); this may be correlated with snowfall, summer precipitation and May temperatures. Food is a limiting factor only for juveniles at times of deep snow. Predation does not seem a serious factor. Management areas do not appear to have benefited turkeys as yet. True limiting factors, and the critical period of the year, are not yet known.

Weston, Fred. CURRENT WILD TURKEY STATUS. Texas Game and Fish 10(3): 25-26, illus. Feb. 1952.
Discusses natural factors governing productivity, and management measures that can be applied. Improved range use to promote more grass cover is important. Spot habitat improvement techniques, and various artificial feeding methods are described. The key factors are favorable weather and better range management.

BIRDS—DOVES AND PIGEONS

Bastin, Eric Walter. FLIGHT-SPEED OF THE MOURNING DOVE. Wilson Bulletin 64(1): 47. March 1952.
55 miles per hour, cross-wind; Ontario, June 6, 1951.

Boldt, Wilbur John. PRODUCTION OF THE MOURNING DOVE, ZENAIDURA MACROURA (L.) IN SHELTERBELTS, STUTSMAN COUNTY, NORTH DAKOTA, 1950. Masters thesis, Iowa State College, 1951.

Kossack, C. W. A METHOD FOR AUTOPSYING A MOURNING DOVE KILL. Journal of Wildlife Management 16(1): 108. Jan. 1952.
Birds from hunters' bags are examined by production line methods and returned to the hunters dressed and ready for cooking.

Kossack, Charles W. BANDING NESTLING MOURNING DOVES. Bird-Banding 23(1): 28-29. Jan. 1952.
If birds are too young to be banded in the normal way, and cannot be revisited, a band suitable in size for the adult may be put on and held in place by elastic adhesive tape. The tape loosens from the leg in 9 to 12 days and apparently does no harm. The best brand of tape tested was Dalzoflex.

Nice, Margaret M. [PRODUCTIVITY OF THE MOURNING DOVE.] Bird-Banding 23(1): 55-56. Jan. 1952.
The author takes issue with the conclusion of O. L. Austin, Jr. (Bird-Banding, Oct. 1951) that the nesting success of doves under observation is far lower than that of those left alone. She discusses the figures of Austin and others and concludes that, "...each pair of Mourning Doves can well raise the necessary number of young, even though they lose half their eggs. They do so by keeping everlastingly at it, many of them well into September, a few into October."

BIRDS--DOVES AND PIGEONS--Continued

Ogburn, Charlton, Jr. THE PASSING OF THE PIGEONS. The Land 11(1): 16-24. Spring 1952.
A vivid account of the tremendous numbers of passenger pigeons and of the many ways in which they were slaughtered. There are also some interesting notes on their biology and habits.

Swank, Wendell G. TRAPPING AND MARKING OF ADULT NESTING DOVES. Journal of Wildlife Management 16(1): 87-90, illus. Jan. 1952.
A trap for catching adult doves at the nest is described and figured, and its operation is discussed. Large feathers of wing and tail were satisfactorily marked with white or yellow Testors Model Airplane Dope. Distinct solid lines were found better than designs. The underside of the tail tip of all birds was marked, for this mark shows when the bird is on the nest.

Wilson, Ken. IN DOVE HUNTING LOW HITTING AVERAGES CAN BE COSTLY. Wildlife in North Carolina 16(2): 15, 23. Feb. 1952.
Shots fired and cost of shells per dove bagged by hunters of varying degrees of expertness. 22 hunters fired 452 shells to get 88 doves.

BIRDS--NON-GAME

Anonymous. THE BALD EAGLE IN ALASKA. National Parks Magazine 26(109): 81, 90. April-June 1952.
Discusses the present status of efforts to obtain protection for the bald eagle in Alaska and to have the bounty removed. The U. S. Congress deferred action, but it is hoped that the Alaskan legislature will at least remove the bounty.

Barnes, Irston R. PERSPECTIVES. Atlantic Naturalist 7(3): 136-137. Jan.-Feb. 1952.
This and an article that follow it describe and protest the slaughter of hawks at Cape May, New Jersey, and propose ways of ending it.

Broley, Myrtle J. BROLEY BANDS 'EM HIGH. Natural History 61(1): 40-45, illus. Jan. 1952.
This account of the famous eagle bander contains useful information on tree climbing methods that work where climbing irons are useless, on the decline of eagles in Florida, and on the habits and travels of eagles.

Hake, Theodore. SAFE HARBOR. A WAY STATION ON THE SUSQUEHANNA FLYWAY. Atlantic Naturalist 7(3): 125-132, illus. Jan.-Feb. 1952.
Narrative about shore birds seen on the flats. Includes table of those seen June-October, 1950 and 1951.

Lovell, Harvey B. BLACK VULTURE DEPREDATIONS AT KENTUCKY WOODLANDS. Wilson Bulletin 64(1): 48-49. March 1952.
Second record of these birds attacking young pigs with fatal results. They attack at the tail and pull out the intestines. A farmer estimated they killed 40 pigs on his farm in a year and a half. Turkey vultures were not involved at this locality, but have been known to attack young pigs in Florida.

Nicholson, Donald J. LITTLE KNOWN FACTS ABOUT FLORIDA BALD EAGLES. Florida Naturalist 25(1): 23-26, illus. Jan. 1952.
Miscellaneous personal observations on life history and behavior.

Northwood, J. D'Arcy. THE MYNA IN HAWAII, ASSET OR LIABILITY? Audubon Magazine 54(1): 22-27, illus. Jan.-Feb. 1952.
Notes are given on the status, habits, or local distribution of various introduced birds, especially the myna. Reduction or extermination of native birds is attributed primarily to introduced diseases rather than to competition. The myna "...dispossessed no native birds, it helped control an 'insect

BIRDS--NON-GAME--Continued

scourge,' and it competed successfully with the aggressive house sparrow. ...In towns, its roosting habits have become a nuisance, and it destroys some fruit..."

Olson, Sigurd T. and William H. Marshall. THE COMMON LOON IN MINNESOTA. University of Minnesota Museum of Natural History, Occasional Papers No. 5: 1-77, illus. 1952.
A well rounded life history study, based on a Master's thesis. Many topics are discussed, including names, plumages, adaptations, diving, weights and measurements, behavior of several kinds, ecological relations with other birds, food habits, migration, territorialism, nesting, degree of success, and populations. The economic effect of loons is generally insignificant, but during migration, concentrations in Lake Superior cause important problems to commercial fishermen by hopelessly tangling gear and ruining whole hauls of herring.

Parmalee, Paul W. GROWTH AND DEVELOPMENT OF THE NESTLING CROW. American Midland Naturalist 47(1): 183-201, illus. Jan. 1952.
Nesting, food of nestlings, temperature regulation, growth changes, development of plumage.

REPTILES AND AMPHIBIANS

Bogert, Charles M. RELATIVE ABUNDANCE, HABITATS, AND NORMAL THERMAL LEVELS OF SOME VIRGINIA SALAMANDERS. Ecology 33(1): 16-30, illus. Jan. 1952.
Compares relative abundance and habitats of various species at different localities. Species living in the same area have about the same thermal level, but thermal levels of these species differ from place to place. The body temperatures of salamanders vary with that of the substratum; salamanders apparently do not control their temperatures by movement between areas of varying heat as do lizards.

Cagle, Fred R. A KEY TO THE AMPHIBIANS AND REPTILES OF LOUISIANA. Tulane University Book Store, New Orleans. v + 45 p., illus. Jan. 1952. 75¢.
A semitechnical key of the type that has proven so useful. Many of the key characters are illustrated and a glossary is provided. Range in the state is indicated for each form and there are occasional taxonomic notes. The author specifies that this work is not intended as a professional reference, as his studies of the state's herpetofauna are still under way. Nevertheless, this booklet will be of real value to all concerned with the herpetology of the South-Central region.

Carr, Archie. HANDBOOK OF TURTLES. THE TURTLES OF THE UNITED STATES, CANADA, AND BAJA CALIFORNIA. Cornell University Press, Ithaca, N. Y. xv + 542 p., illus. 1952. $7.50.
Carr's handbook will automatically take its place as the standard reference on the identification and natural history of our turtles. Like others of the Comstock handbook series, the turtle book is semitechnical. It gives all the information the amateur wants in language he can understand (with the aid of the illustrations), and most of the information the professional wants. Introductory sections take up physiology, behavior, growth, adaptations, economic uses, collecting methods, abnormalities, and terminology of structures. By far the greater part of the volume is devoted to accounts of species and subspecies and keys for their identification. The taxonomic treatment is thoroughly modern. The keys seem good, but more illustrations of key characters would have been welcome. There are, however, photographs of most forms, several of some. Range maps are given for all forms. Each species or subspecies account is divided into sections on range, distinguishing features, description, habitat, habits, breeding, feeding, and economic importance. The bibliography runs 67 pages but has few if any entries later than 1949, when the book apparently went to press.

REPTILES AND AMPHIBIANS--Continued

Conant, Roger. REPTILES AND AMPHIBIANS OF THE NORTHEASTERN STATES. SECOND EDITION. Zoological Society of Philadelphia. 1-41 p., illus. 1952. $1.00.
A reissue of this valuable, low priced booklet. It contains excellent photographs of all species, popular accounts of the species, instructions for the care of captives, and unusually good range statements. This is a fine publication to recommend to laymen and amateur naturalists. The area covered is from Maine to Maryland west to the central parts of New York and Maryland.

Fox, Wade. NOTES ON FEEDING HABITS OF PACIFIC COAST GARTER SNAKES. Herpetologica 8(1): 4-8. March 1952.
Information on foods and feeding behavior of forms of T. elegans in the laboratory and field.

Hernandez, Thomas and Roland A. Coulson. HIBERNATION IN THE ALLIGATOR. Proceedings of the Society for Experimental Biology and Medicine 79(1): 145-149, illus. Jan. 1952.
Authors' summary: "Although alligators are quite active in the winter if the temperature is high they have a pronounced hypoglycemia and no appetite. There is no seasonal change in metabolic rate in either the alligator or caiman. The caiman does not hibernate. Pituitary powder produces prolonged hyperglycemia and increases the metabolic rate. Desiccated thyroid powder has no effect on blood sugar. Neither glucose nor insulin had any effect on metablic rate."

Klau, Helene H., and Paul R. David. THE BIMODALITY OF LENGTH DISTRIBUTION IN HETERODON P. PLATYRHINOS L. AND ITS RELATION TO THE SEASON IN WHICH THE SPECIMENS WERE COLLECTED. American Midland Naturalist 47(2): 364-371, illus. March 1952.
The bimodality is attributed to the presence of age groups, and to the elimination of many small snakes during fall and winter.

Livezey, Robert L. SOME OBSERVATIONS ON PSEUDACRIS NIGRITA TRISERIATA (WIED) IN TEXAS. American Midland Naturalist 47(2): 372-381, illus. March 1952.
Gives much information on breeding biology, calling, eggs, tadpoles, development, and foods of young and adults.

Moore, John A. AN ANALYTICAL STUDY OF THE GEOGRAPHIC DISTRIBUTION OF RANA SEPTENTRIONALIS. American Naturalist 86(826): 5-22, illus. Jan.-Feb. 1952.
"Data are given on temperature adaptations such as embryonic temperature tolerance, rate of development, egg size, and type of jelly mass. These data are considered in relation to geographic distribution and breeding habits of Rana septentrionalis. One would predict on the basis of the types of embryonic temperature adaptations shown by Rana septentrionalis that this species should range further south than it does. It is suggested that competition with Rana catesbeiana may be an important factor in restricting the southern distribution of Rana septentrionalis." Local similarities in color of R. septentrionalis and R. clamitans are thought to result from natural selection, not from interbreeding, for the latter does not occur.

Oliver, James A. FROGS AS FRIENDS OF MAN. Animal Kingdom 55(2): 38-45, illus. March-April 1952.
A popular discussion of the many uses man makes of frogs and toads. "Frog farming" is a fraud, but a 1½-acre farm pond may yield $100 worth of frog legs annually in addition to other products. In 1948 the U. S. imported 766,262 pounds of frog legs, chiefly from Cuba and Japan, and large quantities were obtained locally. Many states have laws regulating frog hunting. The giant Neotropical toad, Bufo marinus, has been introduced in many tropical areas; it has helped save crops from insects in Puerto Rico, Martinique, Hawaii, New Guinea, and Australia. Frogs of many kinds are used in pregnancy tests and physiological research. Light leathers are made from the skins of large toads in Japan and bullfrogs in Cuba.

REPTILES AND AMPHIBIANS--Continued

Orton, Grace L. KEY TO THE GENERA OF TADPOLES IN THE UNITED STATES AND CANADA. American Midland Naturalist 47(2): 382-395, illus. March 1952.
"The present paper offers some general remarks on technique, a simplified generic key, and a brief discussion of identification problems within each genus." This work, by the recognized authority on the subject, is illustrated with 21 good drawings and should be most helpful.

Palmer, E. Laurence. REPTILES. Cornell Rural School Leaflet 45(4): 1-31, illus. Spring 1952.
The first 4 pages are devoted to general information and legends about reptiles. The rest of the booklet discusses a number of common reptiles, chiefly those of N. Y., with facts about their biology, economic values, and behavior as pets. It will help dispel the general fear of most reptiles. Very popularly written, and illustrated with large photographs of each form discussed.

Reeve, Wayne L. TAXONOMY AND DISTRIBUTION OF THE HORNED LIZARDS GENUS PHRYNOSOMA. University of Kansas Science Bulletin 34, pt. 2, no. 14: 817-960, illus. Feb. 1952.
From author's abstract: "The lizards of the genus Phrynosoma are treated monographically. Fourteen species are recognized with a total of 27 forms (species and subspecies). Considerable information is given on taxonomic history, osteology, habits, and speciation. A series of maps give a complete picture of the known distribution of each form." Six pages are devoted to a summary of the natural history of the genus.

Swanson, Paul L. THE REPTILES OF VENANGO COUNTY, PENNSYLVANIA. American Midland Naturalist 47(1): 161-182, map. Jan. 1952.
All species known from Pennsylvania are listed. Those not known from Venango County are annotated with the nearest known localities. The bulk of the paper consists of an annotated list that reports diversified observations on abundance, habitat, feeding, breeding, and history in the region.

FISHES

Gunter, G. THE IMPORT OF CATASTROPHIC MORTALITIES FOR MARINE FISHERIES ALONG THE TEXAS COAST. Journal of Wildlife Management 16(1): 63-69. Jan. 1952.
Some points of general interest are: "...there is doubt about how much marine fisheries anywhere have been benefited, controlled or conserved by any restrictive measure..." On the Texas coast, "Restrictive measures merely conserve the population until such time as a large part of it is destroyed by hard cold waves and other catastrophes. Such measures are non-conservational and costly and are against the public interest. Restrictive measures relating to fishing in the bay waters of Texas should be abolished."

La Rivers, Ira, and T. J. Trelease. AN ANNOTATED CHECK LIST OF THE FISHES OF NEVADA. California Fish and Game 38(1): 113-123. Jan. 1952.
Current scientific names and standardized common names are used. Native and introduced species are included. Annotations give past and present distribution and occasionally include discussion of taxonomy or ecology.

Miller, Richard B. THE RELATIVE STRENGTHS OF WHITEFISH YEAR CLASSES AS AFFECTED BY EGG PLANTINGS AND WEATHER. Journal of Wildlife Management 16(1): 39-50, illus. Jan. 1952.
Of particular interest to wildlife biologists because of one of its conclusions: "The study proves conclusively that the year class strength is completely unaffected by plantings from the hatchery in lakes where a spawning population exists."

FISHES—Continued

Miller, Robert Rush. BAIT FISHES OF THE LOWER COLORADO RIVER FROM LAKE MEAD, NEVADA, TO YUMA, ARIZONA, WITH A KEY FOR THEIR IDENTIFICATION. California Fish and Game 38(1): 7-42, illus. Jan. 1952.
This useful manual contains a semitechnical key and illustrations of 31 species of several families. The ecology, distribution, and suitability as bait of each species is discussed. Only 4 species are really recommended, and some are considered extremely dangerous to the fishery.

INVERTEBRATES

Froeschner, Richard C. A SYNOPSIS OF THE CICADIDAE OF MISSOURI (HOMOPTERA). Journal of the New York Entomological Society 60(1): 1-14, illus. March 1952.
Keys, records, remarks.

Froeschner, Richard Charles. MONOGRAPH OF THE ORTHOPTERA OF IOWA. Masters thesis, Iowa State College, 1951.

Holland, George P. NOTES ON SOME SIPHONAPTERA FROM CANADA. Canadian Entomologist 84(3): 65-73. March 1952.
An appendix to Holland's 1949 paper on the Siphonaptera of Canada (Can. Dept. Agr. Tech. Bul. 70), which summarized all available data through 1946. Notes, including host records, are provided for 10 additional species, and an extensive list of references is included.—R. T. Mitchell.

Whittaker, R. H. A STUDY OF SUMMER FOLIAGE INSECT COMMUNITIES IN THE GREAT SMOKY MOUNTAINS. Ecological Monographs 22(1): 1-44, illus. Jan. 1952.
Listed here only because certain conclusions, though not new, are worthy of repetition. "Among distributional patterns charted for 100 species no two were alike; and it was not possible to fit the distributions into associations, formations, or zones. Gleason's individualistic hypothesis is asserted for animal communities.....The orderliness of material communities is a statistical, and not an Aristotelian order, a phenomenon of population patterns, centers, trends, and functional and distributional groupings and not of discrete units or associations. This study has attempted to show both the real complexity and lack of order in species distributions and the effectiveness of community study not based on assumed units."

VEGETATION--GENERAL, ECOLOGY, CONTROL, TECHNIQUES

Anonymous. POWER-LINE SPRAYING HEADED FOR CHANGE. Wisconsin Conservation Bulletin 17(3): 28-29. March 1952. [Digest of article, "Right-of-Way Maintenance," in Nov.-Dec. 1951 issue of Pennsylvania Forests and Waters.]
Conservationists objected to power-line cuts made barren by herbicides, and utility companies found other objections: "(1) the sprays often drifted and left the companies liable for damage to adjacent crops; (2) the root-kill of woody plants often was very disppointing; and (3) even where the utilities got what they wanted, a grass sod, that increased the fire hazard and made such a fine seed-bed for trees that they kept popping up." Tests and current opinion favor the use of shrubs, which may keep trees out for 25 years. Low shrubs are wanted under the lines, taller ones at the sides of the cuts. Selective basal spraying is used. Concentrated mixtures of 2,4-D and 2,4,5-T are sprayed under low pressure at the lower portion of the plant to be killed and the ground line around it. This gives good root-kill and takes little more time than blanket spraying.

Benninghoff, William S. INTERACTION OF VEGETATION AND SOIL FROST PHENOMENA. Arctic 5(1): 34-44, illus. March 1952.

VEGETATION--GENERAL, ECOLOGY, CONTROL, TECHNIQUES--Continued

Cain, Stanley A. and Francis C. Evans. THE DISTRIBUTION PATTERNS OF THREE PLANT SPECIES IN AN OLD-FIELD COMMUNITY IN SOUTHEASTERN MICHIGAN. Contributions from the Laboratory of Vertebrate Biology no. 52: 1-11, illus. March 1952.
A paper devoted to methods for measuring the degree of clumping of plants. Three conspicuous species of an old field were used for the trials; their occurrence is analyzed in detail.

Dice, Lee R. MEASURE OF THE SPACING BETWEEN INDIVIDUALS WITHIN A POPULATION. Contributions from the Laboratory of Vertebrate Biology no. 55: 1-23, illus. March 1952.
Devices and statistics for determining and expressing spacing. "The measurement of spacing between individuals should be of general usefulness for describing the structure of populations and communities in quantitative terms. Its particular merit is that the measurements obtained are not affected by sample size." Examples are drawn from plants, but the methods will work for some animals, presumably those that move little if at all.

Egler, Frank E. HERBICIDE EFFECTS IN CONNECTICUT VEGETATION, 1950. Journal of Forestry 50(3): 198-204, illus. March 1952.
"This is the fifth and last report on herbicide studies being carried out at Aton Forest and vicinity." It reports the effect of 2,4-D and related chemicals on a wide variety of plants, herbaceous and woody, with emphasis on the promising technique of basal-bark spraying.

Evans, Francis C. THE INFLUENCE OF SIZE OF QUADRAT ON THE DISTRIBUTIONAL PATTERNS OF PLANT POPULATIONS. Contributions from the Laboratory of Vertebrate Biology no. 54: 1-15, illus. March 1952.
From author's summary: "The size of quadrat was found to affect the resulting values of frequency and abundance, as well as the frequency distributions of the number of individuals per quadrat. It was also shown to have a marked effect upon various measures of dispersion. This demonstration suggests the desirability of utilizing several sizes of quadrat in securing samples for the study of distribution patterns and other phytosociological characteristics."

Hill, Albert F. ECONOMIC BOTANY; A TEXTBOOK OF USEFUL PLANTS AND PLANT PRODUCTS. SECOND EDITION. McGraw-Hill Book Co., N. Y. 560 p., illus. 1952. $6.00.
An exceedingly useful semitechnical book. It treats plants of the world. Plants are discussed by economic groups.--Neil Hotchkiss.

Kramer, Paul J. PLANT AND SOIL WATER RELATIONS ON THE WATERSHED. Journal of Forestry 50(2): 92-95. Feb. 1952.
Importance of transpiration in controlling quantity of soil water; factors affecting transpiration; species differences in transpiration. "It seems probable that conversion of forests to relatively shallow-rooted, herbaceous vegetation would sometimes result in considerable increase in water yield."

McMinn, Robert G. THE ROLE OF SOIL DROUGHT IN THE DISTRIBUTION OF VEGETATION IN THE NORTHERN ROCKY MOUNTAINS. Ecology 33(1): 1-15, illus. Jan. 1952.
Considers the relation of soil moisture and temperature to different sites, altitudes, and plant associations. In general, there is a gradation with altitude, low-lying grasslands having warmer, drier soils, and high forest lands having cooler, moister soils. Site and exposure may alter the picture locally.

VEGETATION--FLORAS AND COMMUNITIES

Allard, H. A. and E. C. Leonard. THE CANAAN AND THE STONY RIVER VALLEYS OF WEST VIRGINIA, THEIR FORMER MAGNIFICENT SPRUCE FORESTS, THEIR VEGETATION AND FLORISTICS TODAY. Castanea 17(1): 1-60, illus. March 1952.
The red spruce and hemlock forest of this area in Tucker and Grant Counties, northern West Virginia was destroyed in the early 1900's. Grassland, brush, bog, and a limited amount of deciduous forest have replaced it on soil and

VEGETATION--FLORAS AND COMMUNITIES--Continued

rock that have lost much of their original humus. The authors discuss all this in detail, and list nearly 400 species of ferns and flowering plants with notes on their habitat and distribution.--Neil Hotchkiss.

Evans, Francis C. and Stanley A. Cain. PRELIMINARY STUDIES ON THE VEGETATION OF AN OLD-FIELD COMMUNITY IN SOUTHEASTERN MICHIGAN. Contributions from the Laboratory of Vertebrate Biology no. 51: 1-17, illus. March 1952.
Quantitative and successional study of a Poa-Aristida plot on the George Reserve.

Graves, Arthur Harmount. ILLUSTRATED GUIDE TO TREES AND SHRUBS. Author, Wallingford, Conn. 240 p., illus. 1952. $4.00.
Includes the native, naturalized, and commonly cultivated exotic species that grow in New England, New York, Pennsylvania, New Jersey, and Delaware. Only the most important features of each plant are described and that in a more than commonly entertaining manner. Twig, bud, and other characters aid identification in winter. There are many excellent drawings.--Neil Hotchkiss.

Grimm, William C. THE SHRUBS OF PENNSYLVANIA. Stackpole, Harrisburg, Pa. xvii + 522, illus. 1952. $5.00.
Laymen and scientists alike can ask for nothing better than this handbook. Everything the non-specialist might want is here, but nowhere does technicality intrude unnecessarily. There are good, workable keys to the shrubs in both summer and winter conditions, illustrations of characters, a glossary, large clear drawings of each species, non-technical descriptions, habitat statements, and notes on use by man and wildlife. Both general range and Pennsylvania distribution are given in adequate detail. The nomenclature is that of the last edition of Gray's Manual, but old names are given in the text. Meanings of generic and specific names are listed. There is a table of "Native shrubs for ornamental and wildlife planting" giving the site requirements and height of each form included. School children, naturalists, and professional biologists in several northeastern states will find that this book meets most of their needs for information about shrubs. A companion volume, The Trees of Pennsylvania, by the same author, was previously published.

Shanks, Royal E. CHECKLIST OF THE WOODY PLANTS OF TENNESSEE. Report of the Reelfoot Lake Biological Station 16: 27-50. Jan. 1952. (Same as Journal of the Tennessee Academy of Science 27(1): 27-50.)
Annotated list of all trees and shrubs. Based on extensive field work. Gives scientific and common names and distribution in state.

VEGETATION--FOREST

Bach, Roy N. THOSE PRECIOUS THREE INCHES. North Dakota Outdoors 14(9): 18-19, 21, illus. March 1952.
Shelterbelts are commonly ill-designed or ill-placed to serve either as good snowbreaks for farmsteads or as good winter cover for wildlife. Shelterbelt planning may have to be drastically revised.

Baker, Harold L. and Adon Poli. AREA AND OWNERSHIP OF FOREST LAND IN LAKE COUNTY, CALIFORNIA. U. S. Forest Service, California Forest and Range Experiment Station, Forest Survey Release no. 11: 1-22, illus. Feb. 1952.
Includes figures on extent of different forest types, and full page colored map showing age and type of all forest land in the county.

Bramble, William C. REFORESTATION OF STRIP-MINED BITUMINOUS COAL LAND IN PENNSYLVANIA. Journal of Forestry 50(4): 308-314, illus. April 1952.
Factors affecting natural and artificial reforestation of stripped land. Natural development is usually slow and often inadequate, especially on new spoil banks. A number of kinds of trees and shrubs can be planted successfully either spring or fall. Leveling and planting are now required by state law.

VEGETATION--FOREST--Continued

Compton, Lake F. and Robert K. Winters. DISTRIBUTION OF TREE SPECIES IN KENTUCKY. U. S. Forest Service, Central States Forest Experiment Station, Forest Survey Release no. 11: 1-16, illus. Feb. 1952.
Maps for 12 important or abundant trees and explanation of sampling.

Cooper, George R. RESPONSE OF THE BLACK LOCUST, ROBINIA PSEUDOACACIA L., TO ENVIRONMENTAL FACTORS. PhD thesis 1105, Iowa State College, 1950. Long abstract in Iowa State College Journal of Science 26(2): 189-191. Jan. 1952.

Foss, Wilbur. THE VALUE OF A WINDBREAK TO YOU. South Dakota Conservation Digest 19(4): 8-10, illus. April 1952.
Examples of the values of windbreaks to wildlife, homeowners, stockmen, and others. Plans for a good windbreak planting are given. The South Dakota P.-R. Game Cover Development Project will make the plantings without charge for farmers who meet certain requirements.

Grosenbaugh, L. R. SHORTCUTS FOR CRUISERS AND SCALERS. U. S. Forest Service, Southern Forest Experiment Station, Occasional Paper 126: 1-24, illus. March 1952.
A digest of new and rapid methods, some of them of value to forest wildlife biologists. "This paper explains how to: Cruise timber without plot boundaries or tree diameters. Simplify much mental arithmetic. Compute individual tree volumes rapidly without referring to volume tables. Compute log volumes by any of four popular log rules. Compute cull percents for logs independently of log rules. Compute net log scale by machine accumulation of recorded net lengths and diameters without looking up individual log values. Design sampling plans for cruising, scaling, or tree measurement."

Hanson, W. R. GRAZING USE OF FOREST LANDS. Forestry Chronicle 28(1): 23-32. March 1952.
The author discusses without bias the interrelationship of livestock, big game, timber, watershed protection, and recreation. He gives much factual data and concludes that with proper scientific management the interests of all groups can be served. Grazing must be held to a prescribed level, but when this is done grazing will actually favor timber production under certain circumstances, and is not deleterious to big game or watershed protection.

Johnson, E. A. EFFECT OF FARM WOODLAND GRAZING ON WATERSHED VALUES IN THE SOUTHERN APPALACHIAN MOUNTAINS. Journal of Forestry 50(2): 109-113, illus. Feb. 1952.
Six cows were allowed to graze a 145-acre experimental forest unit from May to September, 1941 to date. Cows were given enough supplementary food to keep up their strength. Damage exceeded expectations. Practically all edible plants not over 15 feet tall have been consumed. Young trees have no chance and the growth of older ones is markedly set back. The soil is compacted, permits rapid run-off, and is suffering sheet erosion. Previously there was no surface run-off. The stream has become turbid. The economic loss is considerable and is in no way compensated. One acre of improved pasture will provide more grazing than 100 acres of woodland.

Kucera, Clair Leonard. COMPOSITION AND ENVIRONMENTAL INTERACTIONS OF A NATURAL FORESTED AREA OF CENTRAL IOWA. PhD thesis 1102, Iowa State College, 1950. Long abstract in Iowa State College Journal of Science 26(2): 233-234. Jan. 1952.
Discusses many chemical and physical features of an upland woods.

McCormack, James F. FOREST STATISTICS FOR SOUTHWEST GEORGIA, 1951. U. S. Forest Service, Forest Survey Release no. 37: 1-38, illus. Feb. 1952.

VEGETATION--FOREST--Continued

Merz, R. W. and W. T. Plass. NATURAL FORESTATION ON A STRIP-MINED AREA IN OHIO. U. S. Forest Service, Central States Forest Experiment Station, Station Notes no. 68. 2 p., illus. Feb. 1952.

Natural seeding may result in satisfactory forestation of certain strip-mined areas located near good sources of seed, even where there is considerable exposed mineral soil. On the north aspect, 93 percent of mil-acre plots contained one or more seedlings, while on the south aspect 65 percent contained one or more seedlings. Sycamore and yellow poplar were among the volunteers.

Plass, William T. DIRECT SEEDING TESTS ON OLD FIELDS IN SOUTHEASTERN OHIO. U. S. Forest Service, Central States Forest Experiment Station, Station Notes no. 71. 2 p. April 1952.

Reports experiments with seeding black walnut, red oak, white ash, tulip poplar, and 4 kinds of pine. Methods of ground preparation had little effect on success. "Of the eight species tested, only black walnut and red oak showed promise for establishing forests by direct seeding on old field sites in southeastern Ohio. Shortleaf pine and white ash, although they showed poorer results, also offer some possibility."

VEGETATION--PASTURE AND RANGE

Daniel, Harley A. BRUSH, GRASS, BEEF AND DOLLARS. American Forests 58(3): 12-14, illus. March 1952.

A brief description of the spread of brush over millions of acres of range land and of efforts to remove it. Eradication of brush permits production of far greater quantities of grass and beef. Various control techniques have been worked out for application of herbicides from ground or air. The best herbicides seem to be 2,4-D and 2,4,5-T. It is hoped that vast areas in the Southwest can be cleared of brushy growth. [It seems probable that deer, turkey, certain fur bearers, and some other desirable forms of wildlife will suffer or disappear locally from cleared areas and that less desirable wildlife, such as jackrabbits, will profit. This will be especially true if the customary overgrazing prevails.]

Marsh, V. L. A TAXONOMIC REVISION OF THE GENUS POA OF UNITED STATES AND SOUTHERN CANADA. American Midland Naturalist 47(1): 202-250. Jan. 1952.

The author's treatment differs considerably from that of previous workers. Unfortunately, the paper lacks a key, range maps, and illustrations. Without at least a key, a large part of the utility of a revision is lost.

Rice, Elroy L. PHYTOSOCIOLOGICAL ANALYSIS OF A TALL-GRASS PRAIRIE IN MARSHALL COUNTY, OKLAHOMA. Ecology 33(1): 112-116, illus. Jan. 1952.

An analysis of what constitutes adequate sampling of a tall-grass prairie community. The relative unimportance of Andropogon scoparius in prairies of the region is revealed. The percentage of cover and frequency of 29 plants is tabulated.

Sampson, A. W. RANGE MANAGEMENT: PRINCIPLES AND PRACTICES. John Wiley and Sons, N. Y. 570 p., illus. 1952. $7.50. [Copied from Journal of Forestry 50(4).]

The above mentioned review by D. F. Hervey indicates that this is an exceptionally well rounded text by an authority in the field. It deals with range management in both eastern and western parts of the U. S., and considers the world's grazing practices and problems. There are chapters on erosion, use of fire and chemicals as tools, and on plant physiology, ecology, soils, and climate as related to range problems. One chapter treats the relationship of big game, predators, and rodents to the grazing industry.

VEGETATION--WET-LAND

Penfound, Wm. T. AN OUTLINE FOR ECOLOGICAL LIFE HISTORIES OF HERBACEOUS VASCULAR HYDROPHYTES. Ecology 33(1): 123-128. Jan. 1952.
"The present paper is one of a series of outlines of ecological life history studies appearing in Ecology, under the sponsorship of the Committee on Ecological Life Histories." Gives background of such intensive studies, detailed outline of study topics, and references helpful in the work.

LAND, SOILS, WATER, AND CLIMATE

Cole, Ralph C. and others. SOIL SURVEY OF THE LOS BANOS AREA, CALIFORNIA. U. S. Bureau of Plant Industry, Soils, and Agricultural Engineering. 119 p., illus. Jan. 1952. $2.50.
Physiography, climate, native vegetation, wildlife, history, cultural development, industries, transportation, agriculture, detailed description of soils (with soil map), water control on the land.--Neil Hotchkiss.

Goodman, K. V., D. B. Lovejoy, and J. R. Arno. SOIL SURVEY OF YORK COUNTY, MAINE. U. S. Bureau of Plant Industry, Soils, and Agricultural Engineering. Series 1939, no. 11: 1-134, illus. Feb. 1952. $3.00.
Similar in coverage to others of the series. It has 4 large scale maps.

Perkins, S. O. and William Gettys. SOIL SURVEY OF MITCHELL COUNTY, NORTH CAROLINA. U. S. Bureau of Plant Industry, Soils, and Agricultural Engineering. 85 p., illus. Jan. 1952. $1.75.
Physiography, climate, water supply, native vegetation, history, industries, transportation, cultural development, detailed description of soils (with soil map), soil management, agriculture.--Neil Hotchkiss.

Perkins, S. O., and William Gettys. SOIL SURVEY OF YANCEY COUNTY, NORTH CAROLINA. U. S. Bureau of Plant Industry, Soils, and Agricultural Engineering. Series 1939, no. 15: 1-85, illus. Jan. 1952. $1.75.
Provides detailed maps and discussions of soils of the area, and brief descriptions of topography, geology, climate, water supply, vegetation, and cultural features. The maps are large scale (1-24,000) and show buildings, roads, and streams as well as soils.

Swanson, C. L. W. A NEW CONCEPT - USING CHEMICALS FOR SOIL STRUCTURE IMPROVEMENT. Journal of Soil and Water Conservation 7(2): 61-67, illus. April 1952.
An unusually detailed, authoritative report on Krilium, its function and future. It has tremendous potentialities in several ways, but it is not always needed, and under some circumstances it can cause stem rot.

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